



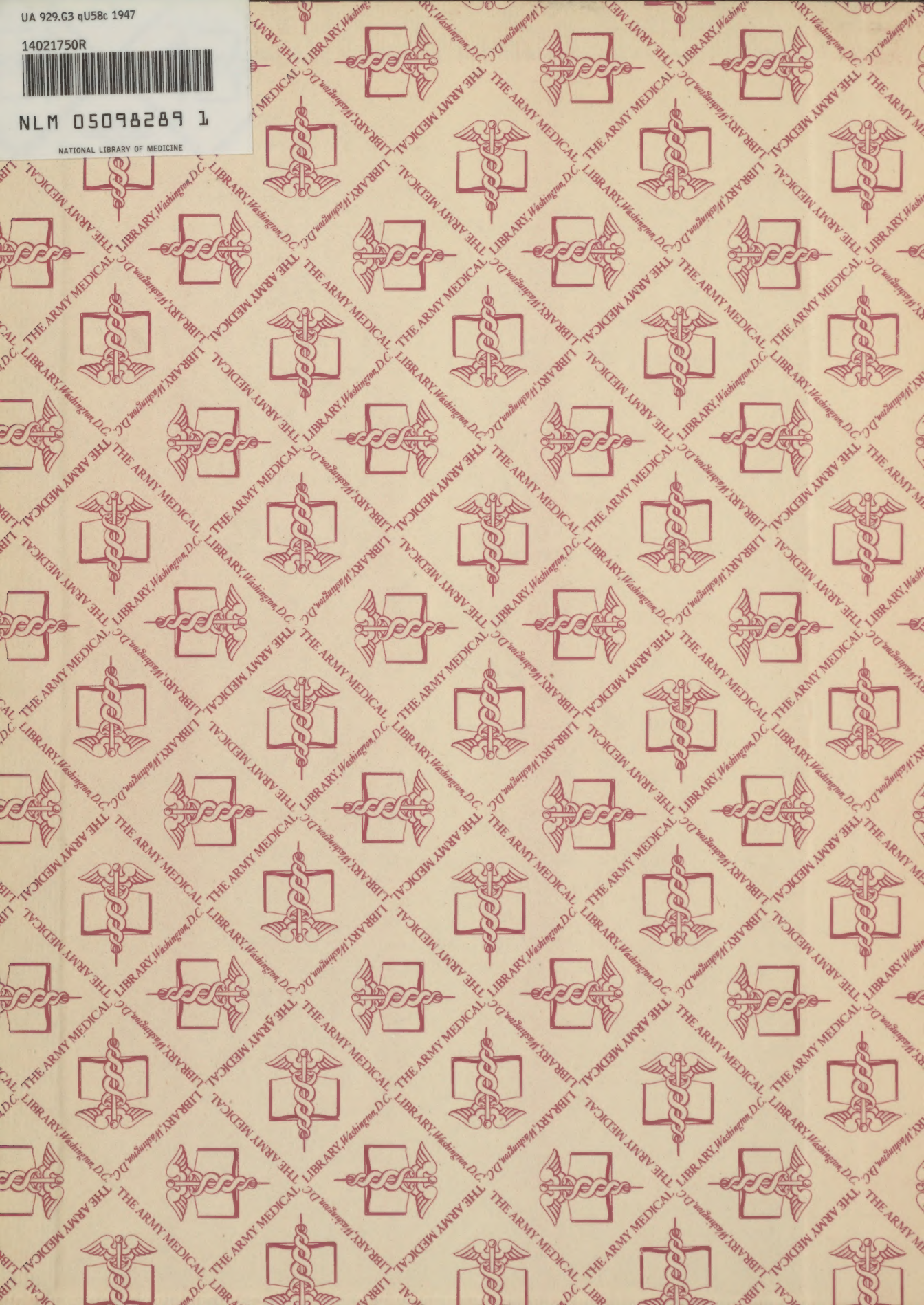


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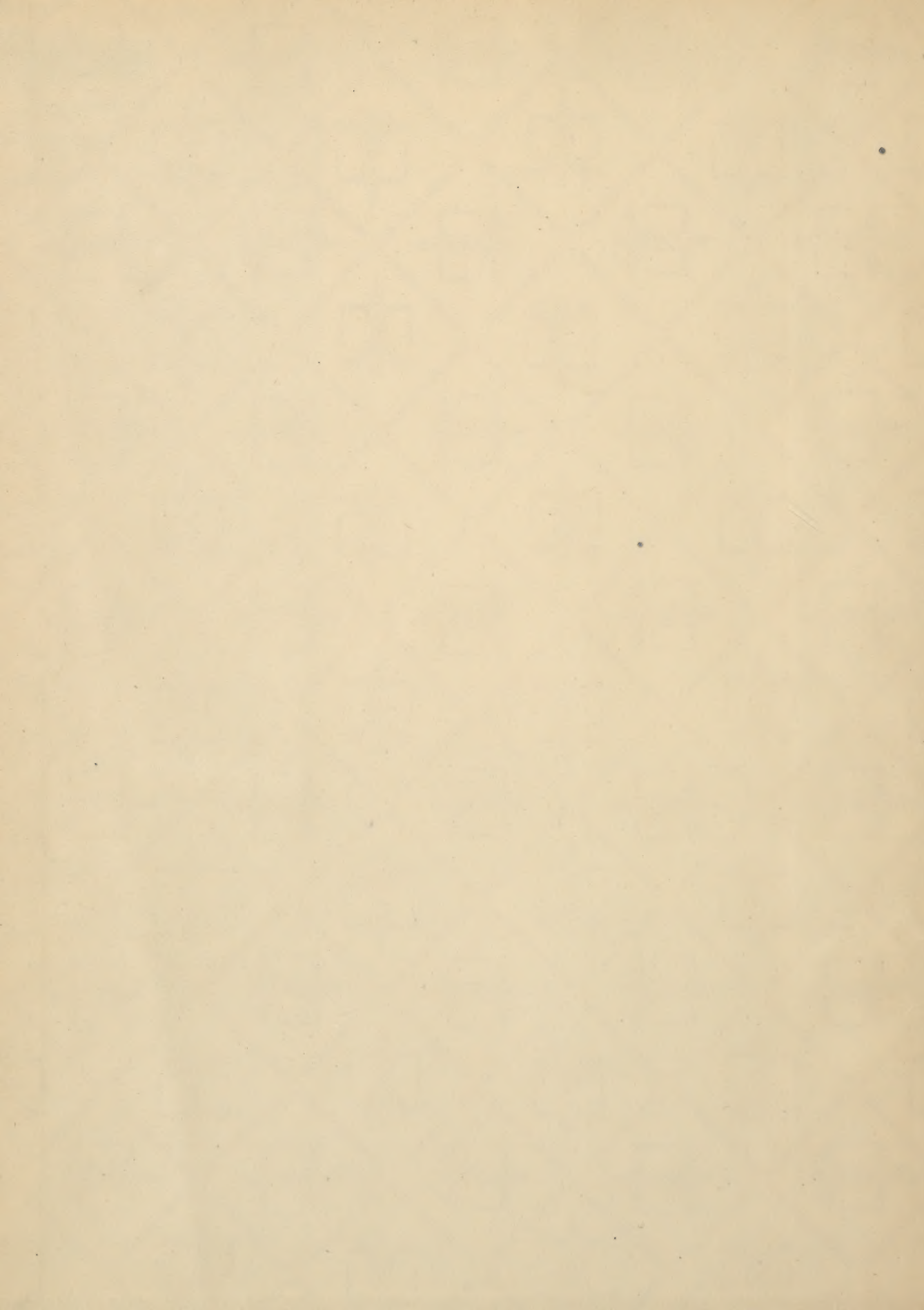
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THE UNITED STATES

U.S. STRATEGIC BOMBING SURVEY

# CIVILIAN DEFENSE DIVISION FINAL REPORT

1300

CIVILIAN DEFENSE DIVISION

Dates of Survey:

15 January-15 August 1945

First Edition 29 October 1945

Second Edition January 1947



This report was written primarily for the use of the U. S. Strategic Bombing Survey in the preparation of further reports of a more comprehensive nature. Any conclusions or opinions expressed in this report must be considered as limited to the specific material covered and as subject to further interpretation in the light of further studies conducted by the Survey.

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## Foreword

The United States Strategic Bombing Survey was established by the Secretary of War on 3 November 1944, pursuant to a directive from the late President Roosevelt.

The officers of the Survey were:

Franklin D'Olier, Chairman.  
Henry C. Alexander, Vice-Chairman.

George W. Ball,  
Harry L. Bowman,  
John K. Galbraith,  
Rensis Likert,  
Frank A. McNamee, Jr.,  
Paul H. Nitze,  
Robert P. Russell,  
Fred Searls, Jr.,  
Theodore P. Wright, Directors.

Charles C. Cabot, Secretary.

The Table of Organization provided for 300 civilians, 350 officers and 500 enlisted men. The Survey operated from headquarters in London and established forward headquarters and regional headquarters in Germany immediately following the advance of the Allied armies.

It made a close examination and inspection of several hundred German plants, cities and areas, amassed volumes of statistical and documentary material, including top German government documents; and conducted interviews and interrogations of thousands of Germans; including virtually all of the surviving political and military leaders. Germany was scoured for its war records which were found



sometimes, but rarely, in places where they ought to have been; sometimes in safe-deposit vaults, often in private houses, in barns, in caves; on one occasion, in a hen house and, on two occasions, in coffins. Targets in Russian-held territory were not available to the Survey.

Some two hundred detailed reports were made. During the course of its work, the Survey rendered interim reports and submitted studies and suggestions in connection with the air operations against Japan.

While the European War was going on, it was necessary, in many cases, to follow closely behind the front; otherwise, vital records might have been irretrievably lost. Survey personnel suffered several casualties, including four killed.

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The Survey studied the effects of the air attack on Japan and further reports have been submitted to the Secretary of War and the Secretary of the Navy.



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## I. PRELIMINARY STATEMENT

### Introduction

1. Investigation of the operations of civilian defense forces in GERMANY has produced many significant features, not the least of which is the fact that conditions resulting from saturation raids in cities like HAMBURG, BERLIN and COLOGNE would have been hopeless beyond description, had it not been for the work of the civilian defense forces.

2. Civilian defense, one of the phases of passive defense, has as its primary mission the minimizing of effects of enemy bombing on civilian communities, industrial plants, and other installations except those of the armed forces. All responsibility in preventing bombing lies with the forces of active defense before and during raids. The critical period of action for civilian defense is after the raids.

3. The efficiency of civilian defense forces must be measured by the degree to which they lessen the effects of the bombs dropped upon their communities. Their capabilities are demonstrated by the extent to which they prevent fires from spreading, save lives of those trapped in buildings, handle expeditiously the care of casualties, and restore speedily the community to that point of its normal operation that can reasonable be expected under the circumstances.

4. In order to accomplish those results, thorough planning by a nation and all of its political sub-divisions well in advance of anticipated hostilities is necessary; and such plans must be carried into effect by procurement of equipment, training of personnel and the public, and the establishment of command authority which can, with flexibility, take the passive defense resources available in the country and put them into service wherever needed.

5. The mission of civilian defense requires that all of a nation's people be marshalled, under adequate direction, to protect themselves and their property. Studies made by this division confirm the conclusion that the civilian defense service can accomplish its mission, provided it is properly planned, established, and operated.

### Purpose and Scope of Report

6. The purpose of this report is to present a study of German civilian defense organization, operation, and equipment, the manner in which it attempted to lessen the effect of aerial attack, and the extent to which it succeeded, in order to determine the implications for the improvement of planning in the UNITED STATES and to assist in the formulation of the national defense policy pertaining thereto.

7. Approach. Research, interrogations, field investigations in COLOGNE, BONN, HANOVER, HAMBURG, BAD OLDESLOE, AUGSBURG, BAVARIA and



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other German communities have developed the plan and its operation, and give definite indications of the functions, responsibilities, controls and methods of civilian defense and evacuation throughout GERMANY.

8. Exclusions. No investigation was made of the effect of aerial attack on industry or commerce or upon the morale of the people, nor of the defensive measures which industry took, except as to matters involving plant protection organization and shelter for employees, as those subjects are being covered by other divisions of the U. S. Strategic Bombing Survey.

9. Time. The period, 27 April 1945 to 5 July 1945, was spent in field work in German communities, and observations are confined to that period of time.

### Attack Data on German Targets

10. The following statistics have been collected from several sources and are considered to be the best available at the date of this report. Because of the different bases upon which these figures were compiled it is difficult to draw any definite conclusions from them, but they are valuable in that they give a broad indication of the extent of strategic bombing of GERMANY and of the minimum results conceded by German authorities.

a. The number of sorties made and the tonnage of bombs dropped on civilian and industrial targets were taken from the records of the Royal Air Force, the U.S. 8th Air Force, and the U.S. 15th Air Force. The figures, which cover the period from 29 October 1939 to 3 May 1945, are shown in tons of 2,000 pounds and include high-explosive, incendiary and fragmentation bombs. It must be noted that tonnage figures do not include those of the tactical airforces. The total number of sorties made (one sortie representing an individual plane dropping its bomb load) was 413,357 and the total tonnage dropped was 1,205,842. The percentages by years of the total tonnage dropped are shown by the following figures:

	<u>Percentage</u>	<u>Tons</u>
1939	.00	8
1940	.75	9,001
1941	2.27	27,359
1942	3.49	42,031
1943	12.56	151,366
1944	48.94	589,873
1945	31.99	386,204 (First 4 months )
Totals	100.00	1,205,842

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b. The figures of casualties suffered and of property damage incurred are entirely from German sources and include only those resulting from British and American action. They have been compiled from monthly reports issued by the Air Defense Staff (Luftschutzarbeitsstab) of the German Air Ministry, entitled, "Summary of Bombs Dropped and Losses Suffered" (Übersicht über Bombenabwürfe und Verluste). These German figures must be considered an absolute minimum and should not be accepted as giving a true picture. Their unreliability is due to the fact that all casualty and damage figures were in the control of the police president, who was the head of the regular police in each locality, and, before forwarding reports to higher authorities in BERLIN, he submitted the figures to the security police (Gestapo) and the Nazi Party leader (Gauleiter) for scrutiny. The general practice was to understate casualty figures with no conscientious attempt to keep an accurate count.

c. The following table shows monthly totals, from January, 1943, through January, 1945, of persons killed, persons seriously injured, buildings destroyed, and buildings severely damaged. One exception to be noted is that no figures on seriously wounded were available for the first nine months of 1943.

<u>1943</u>	<u>Killed</u>	<u>Seriously Injured</u>	<u>Buildings Destroyed</u>	<u>Buildings Severely Damaged</u>
Jan.	700		1,000	4,400
Feb.	500		1,300	5,600
Mar.	2,900		8,400	14,300
Apr.	2,500		5,100	6,700
May	7,700		12,500	28,000
June	9,100		29,800	32,100
July	45,000		46,000	31,800
Aug	8,200		14,200	18,100
Sept.	4,900		14,400	11,000
Oct.	9,930	18,355	19,098	33,150
Nov.	4,708	19,379	12,747	14,039
Dec.	3,969	10,079	9,365	13,643
<u>1944</u>				
Jan.	5,217	9,512	11,444	19,860
Feb.	6,059	12,126	9,614	9,479
Mar.	5,995	18,078	15,840	16,519
Apr.	9,946	17,739	15,013	16,220
May	10,776	17,509	9,512	12,983
June	5,220	10,020	4,121	6,900
July	9,683	18,317	11,909	20,332
Aug	13,072	27,309	25,405	17,681
Sept	20,187	30,827	35,427	27,600
Oct	17,957	28,253	28,253	30,553



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<u>1944</u>	<u>Killed</u>	<u>Injured</u>	<u>Buildings Destroyed</u>	<u>Buildings Severely Damaged</u>
Nov.	17,440	26,035	24,037	33,714
Dec.	24,748	24,037	24,024	32,248
<u>1945</u>				
Jan.	13,553	17,880	20,052	21,102
Totals:	<u>259,960</u>	<u>305,455</u>	<u>408,561</u>	<u>478,023</u>

No comparisons can be drawn between the statistics and figures given above as they have been taken from different sources. Likewise the tonnage and sortie figures apply only to GERMANY proper, whereas the casualty and property figures apply to Greater GERMANY, which included ALSACE-LORRAINE, SUDETENLAND, AUSTRIA and portions of POLAND.

d. The accompanying charts (see pages 6 to 12 inclusive) represent a plotting of these statistics from the above-described sources:

- Chart 1 - Bombs dropped on GERMANY annually, 1939 to 1945, showing distribution of tonnage of high-explosive incendiary and fragmentation bombs.
- Chart 2 - Bombs dropped on GERMANY annually, 1939 to 1945, showing distribution of tonnage of high-explosive incendiary and fragmentation bombs.
- Chart 3 - Bombs dropped on GERMANY monthly, October, 1939, through May, 1945, showing tonnage dropped each month.
- Chart 4 - Number of persons killed by bombs dropped on GERMANY monthly, January, 1943, through January, 1945. (NOTE: Attention is invited to the similarity of the curves, if projected upon this chart, of the relationship between the tonnage dropped and the number of persons killed. The outstanding exception, July, 1943, appears to be the direct result of the heavy raids on HAMBURG during the last week of July).
- Chart 5 - Number of persons seriously injured by bombs dropped on GERMANY monthly, October, 1943, through January, 1945.
- Chart 6 - Number of buildings totally destroyed by bombs

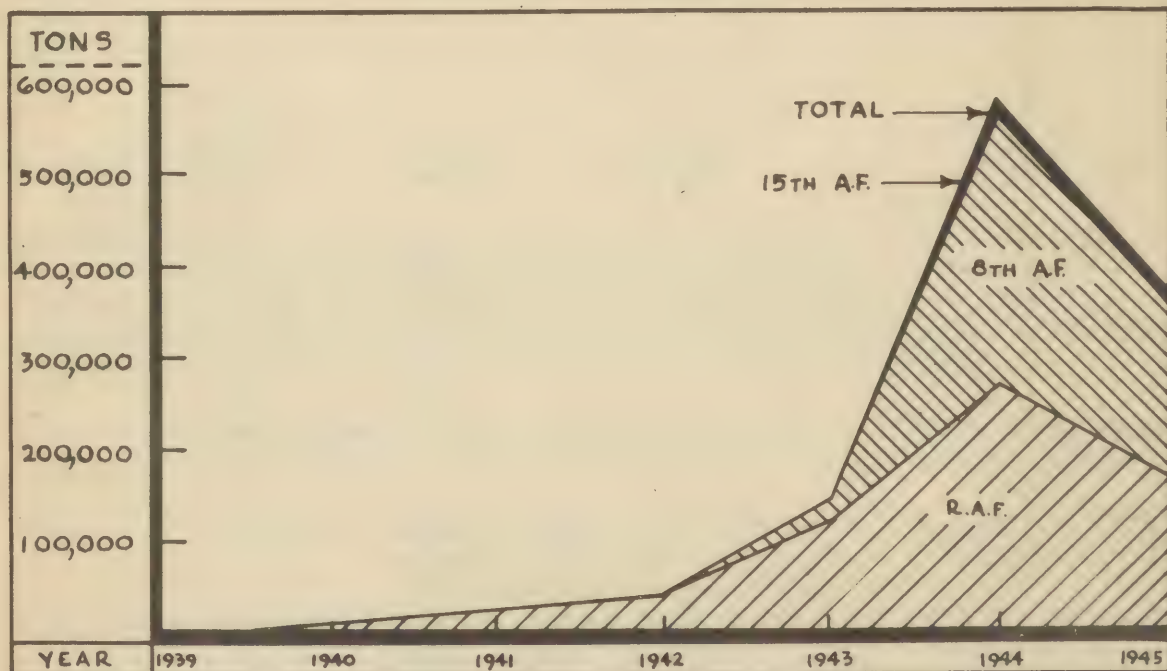
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dropped on GERMANY monthly, January, 1943.  
through January, 1945.

Chart 7 - Number of buildings seriously damaged by bombs  
dropped on GERMANY monthly, January, 1943.  
through January, 1945.



# BOMBS DROPPED ON GERMANY BY AIR FORCE



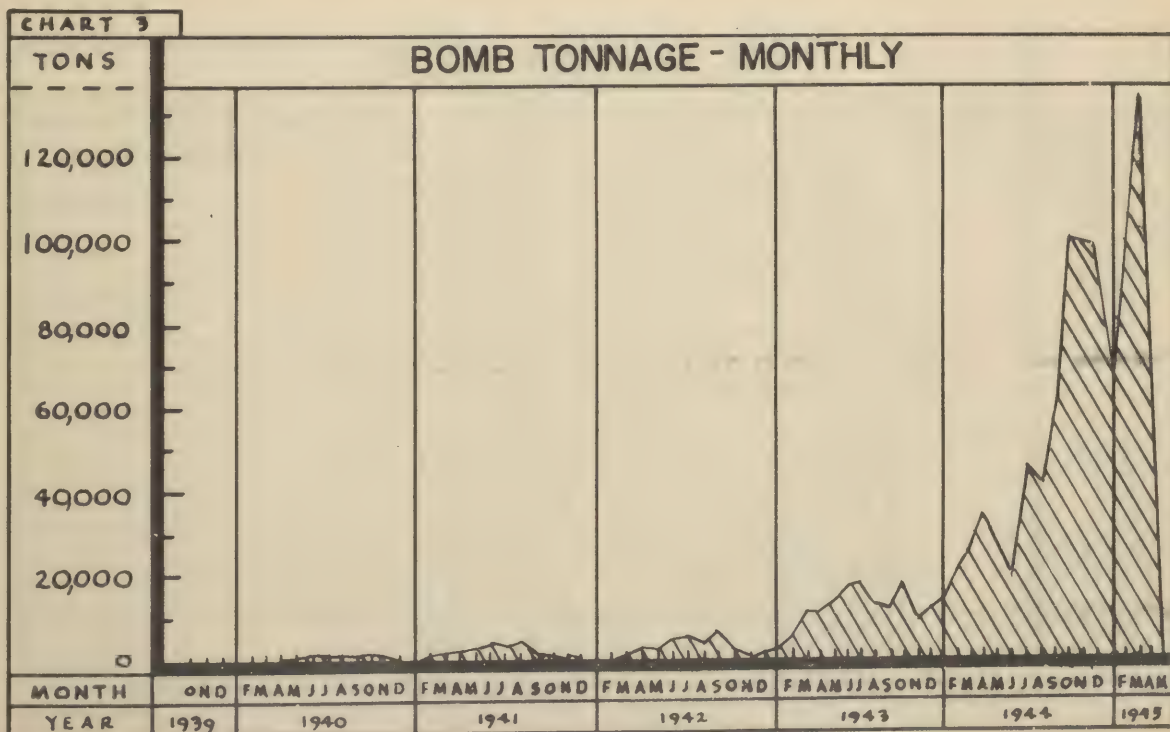
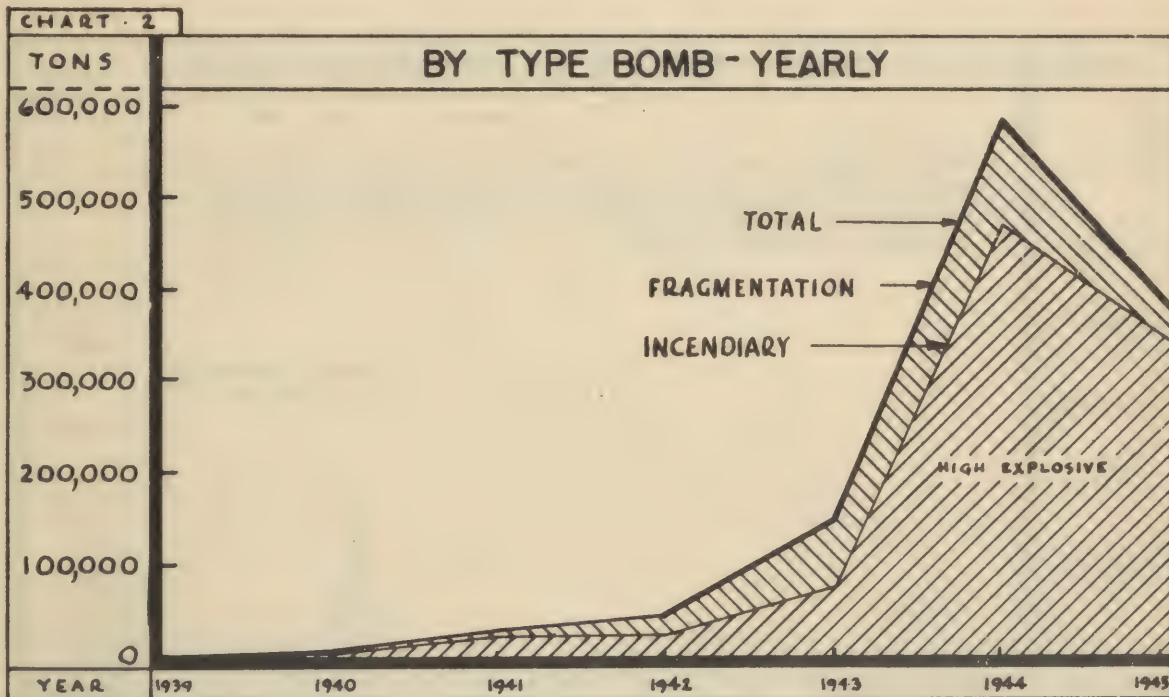
TONNAGE DROPPED					
	RAF	8TH AF	15TH AF	TOTAL U.S.	TOTAL
FIRST RAID	29/30 OCT. '39	27 JAN. '43	19 DEC. '43		
LAST RAID	2/3 MAY '45	25 APR. '45	25 APR. '45		
1939	8	0	0		8
1940	9,001	0	0		9,001
1941	27,539	0	0		27,539
1942	42,031	0	0		42,031
1943	124,789	26,477	100	(26,577)	151,366
1944	276,275	289,055	24,543	(313,598)	589,873
1945	179,948	195,725	10,531	(206,256)	386,204
TOTALS	659,591	511,257	35,174	546,431	1,206,022
PER CENT	54.7	42.3	3.0	(45.3)	100.0

NOTE: 1 TON = 2000 POUNDS.

CHART 1

# BOMBS DROPPED ON GERMANY

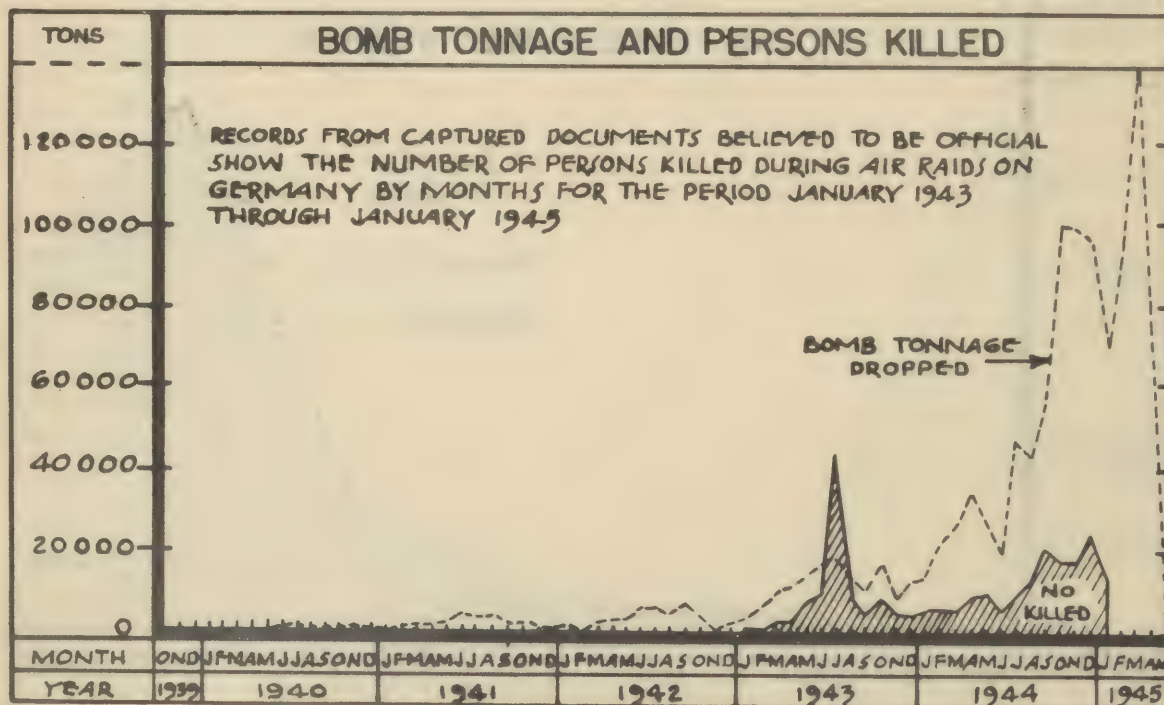
BY ROYAL AIR FORCE - U.S. 8TH & 15TH AIR FORCE





# PERSONS KILLED

BY BOMBS DROPPED ON GERMANY  
RAF, US 8TH AF AND 15TH AF



PERSONS KILLED			
	1943	1944	1945
JAN	700	5717	13553
FEB	500	6059	
MAR	2900	5995	
APR	2500	9948	
MAY	7700	10776	
JUN	91000	5220	
JUL	54000	9683	
AUG	8200	13072	
SEP	4900	20187	
OCT	9900	17957	
NOV	4700	17440	
DEC	4000	24748	
TOTAL	191,000	14,6802	13553

TONNAGE OF BOMBS INCLUDES H.E., INCENDIARY AND FRAGMENTATION TYPES.

ALL TONNAGE FIGURED AS 2000 POUND.

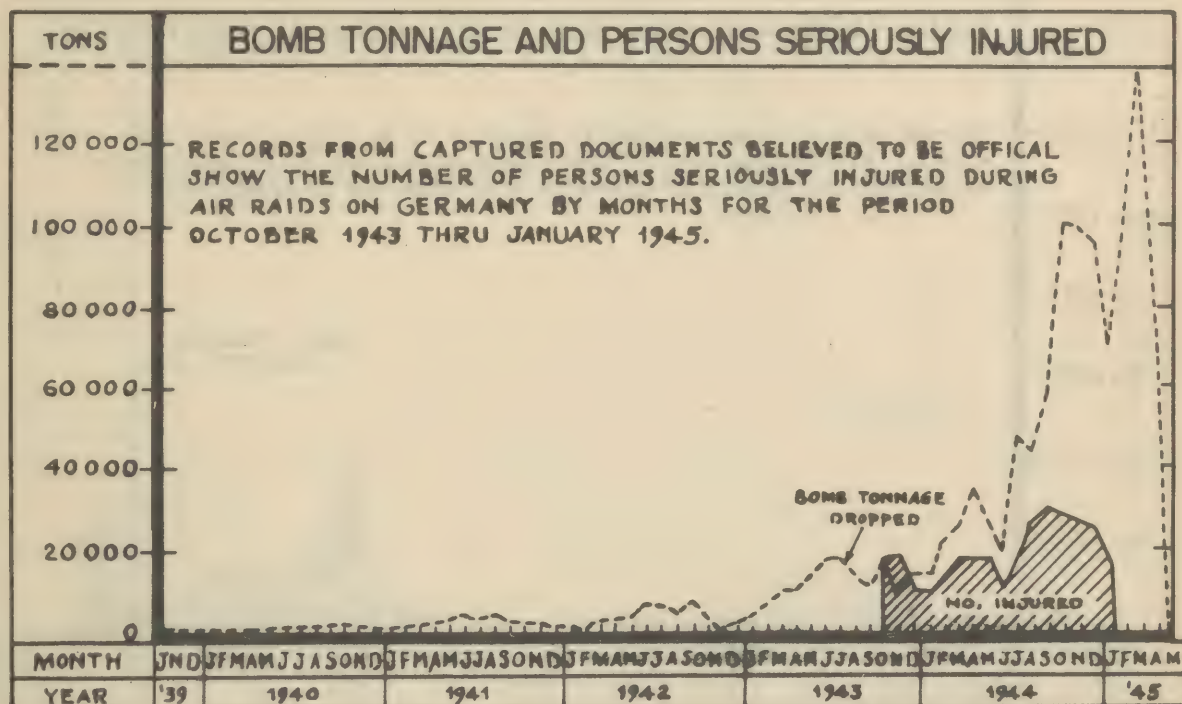
BASIC DATA FROM U.S. STRATEGIC BOMBING SURVEY TABULATING SERVICE BRANCH.

CHART 4

# PERSONS SERIOUSLY INJURED

## BY BOMBS DROPPED ON GERMANY

### RAF, US 8TH, & 15TH A.F.



PERSONS INJURED			
	1943	1944	1945
JAN		9,512	17,880
FEB		12,126	
MAR		18,078	
APR		17,739	
MAY		17,509	
JUN		10,020	
JUL		18,317	
AUG		27,500	
SEP		30,827	
OCT	18,355	28,253	
NOV	19,379	26,035	
DEC	10,079	24,037	
TOTAL	47,813	238,962	

TONNAGE OF BOMBS INCLUDES H.E., INCENDIARY AND FRAGMENTATION TYPES.  
 ALL TONNAGE FIGURED AS 2000 POUNDS.  
 BASIC DATA FROM U.S. STRATEGIC BOMBING SURVEY TABULATING SERVICE BRANCH.

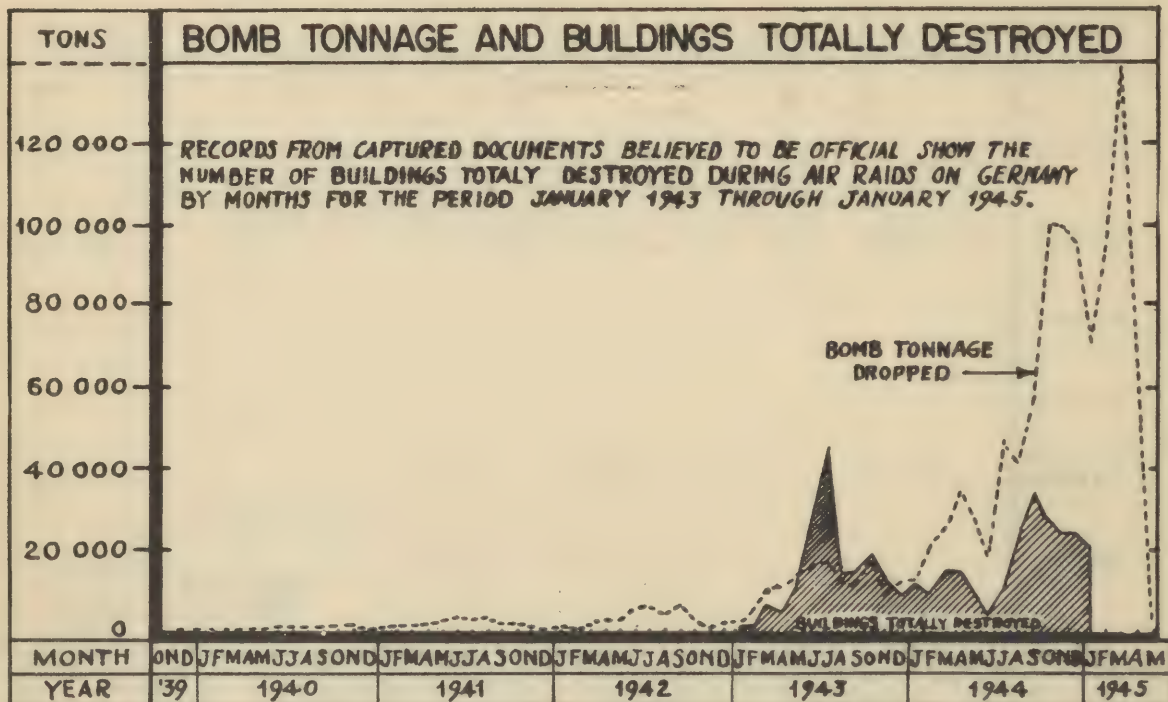
CHART 5



# BUILDINGS TOTALLY DESTROYED

## BY BOMBS DROPPED ON GERMANY

### RAF, US 8TH, & US 15TH A.F.

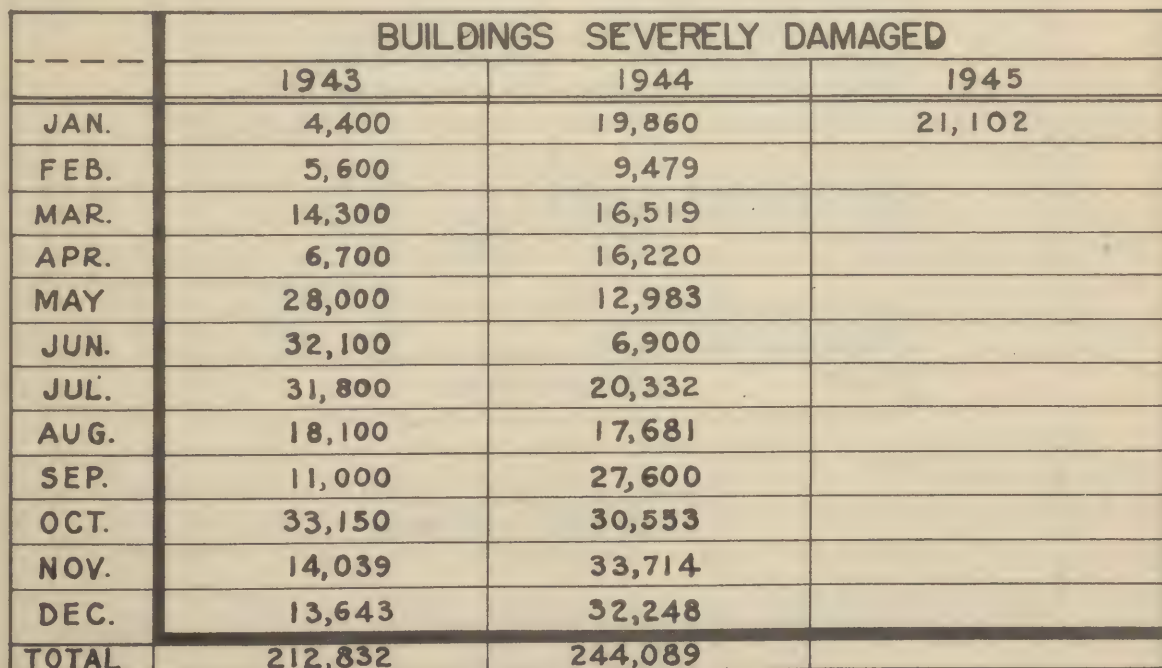


BUILDINGS DESTROYED			
	1943	1944	1945
JAN	1,000	11,444	20,052
FEB	1,300	9,614	
MAR	8,400	15,840	
APR	5,100	15,013	
MAY	12,500	9,512	
JUN	29,800	4,121	
JUL	46,000	11,909	
AUG	14,200	25,405	
SEP	14,400	35,427	
OCT	19,100	28,253	
NOV	12,700	24,037	
DEC	9,400	24,024	
TOTAL	173,900	214,599	

TONNAGE OF BOMBS INCLUDES H.E., INCENDIARY & FRAGMENTATION TYPES.  
 ALL TONNAGE FIGURED AS 2000 POUNDS.  
 BASIC DATA FROM U.S. STRATEGIC BOMBING SURVEY TABULATING SERVICE BRANCH.

**CHART 6**

BY BOMBS DROPPED ON GERMANY  
RAF, US 8TH, & US 15TH A.F.



### CHART 7



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

National Group Leader (Reichsgruppenführer). President of the National Air-Raid-Protection League (Reichsluftschutzbund) (RLB) - responsible directly to Goering.

Provincial Group Leader (Landesgruppenführer). Area of a province (former federal state) including approximately three regions (Gaue).

Regional Group Leader (Gaugruppenführer) (also called Bezirksgruppenführer). Area of a political region (Gau).

Area Group Leader (Kreisgruppenführer). An area approximating a U.S. county.

District Group Leader (Ortsgruppenführer). Area of a police district (Abschnitt) in large cities having districts; otherwise, municipal group leader.

Precinct Group Leader (Reviergruppenführer). Area of a police precinct (Revier). Approximately 15,000 to 20,000 persons.

Sub-group Leader (Untergruppenführer). Area of six to ten air-raid-protection blocks.

Block Warden (Blockwart). Area of "an air-raid-protection block" - 10 to 15 houses or a large apartment building.

House Warden (Hauswart). Area of one apartment house or group of small houses - 10 to 40 persons.

AIR RAID WARDENS

## II. CONCLUSIONS

After study and consideration of the operations and accomplishments of the German civilian defense services, certain basic conclusions arrived at by the Civilian Defense Division are presented herewith. It is concluded that;

1. At the national level, planning in civilian defense should be a continuous process, keeping abreast of the development of the techniques of war and weapons and the ways and means to minimize their effect.
2. The control exercised by the German regular police from the national level through the local level made for simplicity of control and command. The emergency created by war in civilian communities requires concentration of authority.
3. The German plan for civilian defense appears to have been based upon the possibility of comparatively small raids successfully carried out by the enemy. When the raids increased to saturation proportions and were consistently recurring in every part of GERMANY, the burden upon the civilian defense organization originally set up was too great for it to bear efficiently. The basic structure of German civilian defense rested upon self-protection (Selbstschutz). The individual was trained to take care of himself, protect his property, and join with a few others in a small group under a warden to help others to do likewise when the task was too great for them to bear alone. This training of the individual in self-protection and the feeling of confidence he had that all would be done that could be done kept alive a strong spirit in civilian defense forces which, in no small measure, was responsible for the fact that the home front did not collapse.
4. No city can have available permanently in every locality sufficient civilian defense forces and equipment adequately to handle the problems created by saturation raids. When those are experienced, it can always use more service. The demands of war upon manpower indicate that this assistance can best be supplied from mobile reserves of, and controlled by, the national government, and so placed strategically with respect to potential targets that they can come to the assistance of the stricken area within a short enough period to render effective service in their respective fields. In mobile reserves devoted to fire protection the time should not exceed an hour.
5. The number and type of mobile reserves to be made available should be determined by the likelihood of attack, the vulnerability of the target, the forces available locally, and the assistance which can be obtained under mutual aid arrangements from other communities.
6. The network of German express highways (Reichsautobahnen) built for military purposes was of great value in getting mutual aid



## FINAL REPORT, C.D.D.

services and mobile reserves to communities requesting assistance.

7. The German air-raid warning system which changed from time to time to keep abreast of developments in the war, worked efficiently.

8. The outstanding characteristic of German control centers was their location in strongly protected shelters, making continued operation under heavy air attack more probable.

9. The absence of adequate provision for an over-all incident control officer was a defect. Such a person, well-trained, would have brought about more coordinated action of the services at incidents.

10. Complete nationalization of fire departments, as was accomplished by GREAT BRITAIN, was the best method developed of operating fire services in war time.

11. Fire protection, prevention, and control should be an integral part of the training program of the armed forces in peace time.

12. The auxiliary mobile pump as used first in GREAT BRITAIN and later in GERMANY, proved of great value in combating fires resulting from enemy action, and it has definite peace-time auxiliary uses and should be developed further as a war emergency apparatus.

13. Heavy duty pumpers and facilities for the production of high caliber fire streams would have been extremely valuable in coping with serious fires.

14. Single-jacketed hose is not suitable for war time need.

15. In fires of large proportions resulting from aerial attack, such as were experienced by certain German cities, all communication, except by messenger, having been put out of action, proper control was lost. This could have been maintained by the use of two-way radio from central control to command car at the scene, and by walkie-talkie from command car to different places at the scene of the fire.

16. In addition to taking every advantage of natural water sources, properly placed static water systems in sufficient quantity capable of quick replenishment from mains independent of the regular water supply are a requirement in modern warfare.

17. Although German cities, because of heavy construction and the use of incombustible material, were less susceptible to conflagrations, they had the weakness of a type of roof construction consisting of wooden battens with loose tiles which made them highly vulnerable to incendiary and high-explosive attacks. When subjected to great numbers of incendiaries and high explosives which started large fires in congested areas, destroyed water supplies, made streets impassable, and

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wrecked communications, great conflagrations resulted, with which the fire-fighting organizations were unable to cope.

18. German experience in conflagrations shows the desirability of continued planning to create fire breaks, to prevent excessive densities of population, and to limit heights of buildings.

19. The German emergency medical service was outstanding:

a. In that it planned and had available when needed in bombed communities and war industries a sufficient number of well-trained medical personnel to handle the casualties that could be reasonable anticipated.

b. In the development and equipment of first-aid stations which were so distributed and staffed as to be the backbone of the service.

20. The bombing of German hospitals created a serious bed shortage which was never satisfactorily met because of inadequate planning for alternate hospitals. That situation indicates the desirability in the construction of future hospitals of placing them away from potential military targets, so that they may be available to handle the overflow of casualties which might result from aerial attack.

21. The identification of bodies was made extremely difficult because of the absence of any rule requiring individuals to have a means of identification, and the further fact that finger-printing was limited to criminals.

22. Although the preparations and equipment for the treatment of gas casualties were most elaborate, as was the training of all civilian defense personnel, the German plan of withholding adequate information from the public in matters of gas protection and identification was unsound.

23. The rescue service was well planned and organized but fell down in that it gave insufficient training in rescue techniques to the personnel of the service.

24. The availability of army and air force personnel for street clearance, restoring order, rough rescue work, emergency feeding, and generally for those tasks which unskilled labor could accomplish, created for each community a large group of reserves which could respond quickly to appeals for help.

25. Industry, with its factory air-raid-protection service, co-ordinated with the air-raid-protection police locally, the national railroads and the national post office, each established and carried out a most effective air-raid protection program.



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26. The subject of protective lighting should be re-evaluated in the light of experiences during this war, with respect to the benefits derived as compared with the costs in extra consumption of fuel, retardation of traffic movement, lower production efficiency, lowering of morale of the workers, and difficulties in times of panic.

27. The war brought about the development of two distinct governmental policies on shelters; in GERMANY, an attempt to construct above-ground shelters that would be bomb-proof; in ENGLAND, a policy to construct shelters for the public which were proof against incendiaries and proof against a 550-pound (250-Kilo) bomb falling 20 feet away. There was a difference of opinion within GERMANY concerning their policy. The whole question, being involved with the development of weapons in modern war, is one that merits immediate, exhaustive, and continuing research.

28. Pre-war German industrial construction generally was built with no idea of protective concealment and in such a way that it could not later be so protected. Much of the construction built during the war took advantage of proper techniques in the selection of sites and used various means which generally brought about effective concealment.

29. The training of civilian defense personnel was carefully and thoroughly conducted so that each participant was properly instructed in the responsibilities of his assignment and the performance of his duties. This training was constantly revised as conditions required, and a vigorous attempt was made to keep it current.

30. The technical planning of evacuation in GERMANY was well done for the volume of people for which it was planned to handle. A principal failure of the program was the result of unreconciled differences of policy between responsible Nazi party organizations, parents and school authorities on the subject of instruction in religion and Nazi doctrines and philosophy. It continued to function reasonable well until transportation was disrupted, huge numbers rendered homeless, and reception areas overcrowded. Toward the end of the war when those conditions developed, control could not be maintained and the plan collapsed.

31. The feature of the emergency welfare service was that during the war it was developed to a point where it was able to function even in the great confusion which followed saturation raids in so many German cities.

III. ESTABLISHMENT AND DEVELOPMENT OF  
GERMAN AIR-RAID-PROTECTION SERVICES

Introduction

1. The consciousness of an impending second great war with implications of indiscriminate air attack upon civilian populations - total war - inspired in many nations, official or semi-official study of the means of resisting such attacks or of ameliorating their consequences.

2. As early as 1928, large-scale, realistic exercises were held in JAPAN, simulating procedures to be followed in civilian defense, and, in the early thirties, definite plans had been prepared by practically all European countries. Study and initial preparations were stimulated by the Japanese attack upon CHINA in 1931, by the Italian conquest of ETHIOPIA and the outbreak of the Spanish civil war in 1935, and they became still more urgent in view of the disclosed resurgence of the German war spirit in the latter half of the thirties.

3. GERMANY, herself, conscious of her future plans and the retaliation she might expect, began her preparations early. By order of 29 April 1933, the Air Travel Section (Luftfahrtabteilung) of the Transport Ministry was expanded to form a separate ministry, that of the Ministry of Air Travel (Reichsluftfahrtministerium), and Göring, then Prussian Prime Minister, was chosen to head it.

4. Besides his primary task, that of imbuing the German nation with a feeling of unarmed security in the midst of neighbors with powerful air forces, which was to be accomplished through the Air-Raid-Protection league, Göring had also to create an air-raid-protection organization. Such an organization was officially established on 24 June 1933, when it was announced that "foreign" planes had flown over BERLIN, and had dropped leaflets insulting the government, a pure invention which Göring did not even take the trouble to stage.

5. As GERMANY became stronger and, consequently, more defiant, her plans were revealed to the extent that announcement was made by BERLIN, 13 March 1935, that GERMANY had rearmed in the air and that Göring had become commander-in-chief of the German Air Force and Minister for Air. A few months later, responsibility for the air-raid-protection service was taken over by the Air Ministry, 1 July 1935, approximately the date of passage of the basic law establishing that organization.

6. A section of the air force general staff (Führungsstab) 1A, Op. 3, was formed to operate the air-raid-protection (Luftschutz) organization which was administered by Inspectorate No. 13 of the Air Ministry with primary interest in the organization and training of units and technical developments.



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a. The composition of this Inspectorate, as originally established, was as follows:

### Section I.

Direction and operations of warning service.  
Formation and operations of motorized fire battalions.  
Supervision of the Air-Raid-Protection League.

### Section II.

Organization.  
Operations of the factory air-raid-protection service, extended self-protection and the self-protection services.

### Section III.

Research and experiment in Technical fields, equipment and instruction, fire-fighting, fire precautions, anti-gas measures, bomb disposal, smoke screens, decoy sites, and allied subjects.

b. The Inspectorate was first established at WANNSEE near BERLIN and later transferred to TANGERMUNDE. In March, 1945, it was abolished because of the conclusion that it was over-staffed, complicated and unwieldy in operation, and the staff personnel, reduced to 96 from a former total of 300 persons, was formed into the Air-Raid-Protection Section of the air force general staff, with the following sub-divisions:

### Section I.

Operations and organization. Press and propaganda.

### Section II.

Warning service, lighting restrictions and control, smoke screens, decoy sites, camouflage.  
Field inspection of motorized fire battalions.  
Supervision of air-raid protection in military installations, railroads, post office system, and waterways.

### Section III.

General Policies.

c. With the reorganization, the general direction and control

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of air-raid-protection policy was vested in the chief of air-raid-protection (Chef des Luftschutzes) of the air force general staff.

### Basic Law

7. The basic law establishing a national service devoted to defense against air attack was passed by the German government on 26 June 1935, and signed by both Hitler and Göring on 31 August 1935.

a. By the provisions of this law, responsibility for air-raid-protection was vested in Göring, the Minister for Air. In the execution of the law, he was given power to avail himself of the resources of the Air Ministry, the services of the regular police, and, also, the services, establishments and facilities of the states, municipalities, local authorities and other public corporate bodies. On matters of policy, the law provided that the Minister for Air work in cooperation with other competent government departments.

b. The law imposed duties upon all German citizens and required their obedience to its provisions. Exempt were members of the armed forces, certain public officials, and those of unsuitable age or physical condition. Other provisions of the law were that;

- (1) In principle, no compensation would be paid for personal service in air-raid protection.
- (2) Secrecy was required on the part of all engaged in matters pertaining thereto.
- (3) Permission was required to publish articles, produce pictures or films, or to organize exhibitions upon the subject of air-raid protection.
- (4) Penalties for violations or resistance to its execution should be applied.
- (5) Prior laws were amended to conform to its provisions.

c. The Minister for Air was further authorized to issue, in agreement with other ministries concerned, administrative provisions for the execution of the law.

### Decrees Pertaining to Basic Law

8. At the time of the passage of the air-raid-protection law, the nationalization of the German police forces was in process, the ulterior object being to use those powerful forces as a major tool of the Nazi Party. When the first decree, providing for the application of the law, was promulgated in 1937, that process had been virtually completed; control of police activities had been taken from municipalities, and



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delegated to Himmler who had been appointed by Hitler in June, 1936 as commander-in-chief of the German police within the Ministry of the Interior.

a. The first decree was dated 4 May 1937. It established the complete structure of the air-raid-protection service and the process of its administration. It defined the task of air-raid protection as that of securing the German people and the territory of GERMANY against the effects of air attack.

- (1) An air-raid-warning service was established to warn of impending danger to the people, public authorities, commercial and industrial undertakings. This service was to be the responsibility of the regular police authorities, except in cases where the Minister for Air assigned particular duties to the air force. By later enactment, the air force was given full responsibility in this field.
- (2) To afford assistance in the event of injury to persons or damage to property, and to assist in maintaining public security and order where they were affected or threatened by air attack, a security and assistance service (Sicherheitsund Hilfsdienst (S.H.D.)) was provided. This service provided professional mobile units of the municipal air-raid-protection services and was responsible for all major tasks arising in emergencies caused by air raid. It consisted of full-time members with the status of auxiliary policemen and was, in May, 1942, renamed air-raid-protection police (Luftschutzpolizei). Its functions comprised fire fighting, rescue, demolition and clearance, building repair, medical (including first-aid and ambulance services), veterinary, gas detection, identification and decontamination.
- (3) The security and assistance service was supplemented in repair and rescue functions by the technical emergency service (Technische Nothilfe (T.N.)). This latter service was created on 30 September 1919 with-in large utility concerns to maintain productive capacity in the event of strikes or public disorder. It was a body of uniformed engineers, technicians, skilled and semi-skilled building specialists, having under their direction groups of unskilled laborers. Its operation was in the field of building construction and repair, public utility maintenance, rehabilitation of facilities in general, and it was called into action in emergencies involving widespread damage to property caused by riots or catastrophes. The organization and identity of the technical emergency service

were preserved by the Nazi Party, and it was placed, 21 October 1933, under the supervision of the Ministry of Security. In 1934, it was converted into a full-fledged Nazi Party formation, and, in 1937, passed to the control of the regular police, and its members armed. Later, in 1939, its basic functions became those of maintaining continuous operations of public utilities, of executing certain air-raid-protection tasks, and of dealing with major emergencies. The regular police (Schutzpolizei) consulted with its air-raid-protection specialists on air-defense matters.

- (4) Similarly, the German Red Cross was assigned special duties in relation to the air-raid-protection medical groups of the security and assistance service.
- (5) To protect industrial and commercial enterprises and the persons engaged therein, and to assure maintenance of uninterrupted operations, the first decree established the factory (industrial) air-raid-protection service (Werkluftschutz) to be organized under the direction the National Industries Group (Reichsgruppe Industrie), a department of the Ministry of Economics comprised of seven main sections, each section having supervision over a number of specific and correlated industries. Officers or representatives of the Industries Group extended their field of authority to sub-divisions of municipalities corresponding to those of the police. Decision was made by those representatives and confirmed by the ministry, regarding the relative importance to the war effort of factories or industrial plants within their jurisdiction. Based on those decisions, factory air-raid-protection services were required in certain plants and not in others. The character and extent of the service in respect to personnel and equipment depended upon the nature of the industry, acreage of the plant and the number of employees. In some instances, joint or common services were set up between two or more adjacent plants. In any case, aid from a plant having a factory air-raid-protection service was obligatory, either to neighboring plants, or to the community as a whole. In the event of extreme urgency, aid was given to plants by the municipal air-raid-protection service.
- (6) The self-protection service (Selbstschutz) was established to protect dwellings, public and private buildings, public offices and minor industrial enterprises together with their occupants and workers. Duty in this service was incumbent upon the whole population,



and was concerned mainly with air-raid protection and conduct in homes. It included within its scope the warden service in its entirety.

- (7) The organization and formation of self-protection units were the responsibility of the German Air-Raid-Protection League (Reichsluftschutzbund) (R.L.B.), which was to act solely in an advisory capacity and only at the request of the agency concerned, such as government Offices, the Nazi Party, states, municipalities, or other public authorities. Its activities in those cases were to be confined to the formation of self-protection units. The Air-Raid-Protection League developed from a consolidation of the following organizations devoted to the study and promotion of air protection: Air-Raid-Protection Club; Air-Raid-Protection League; the Flak Club; and the Circle of Airmen.. The amalgamation of these organizations was ordered, upon the indication of their willingness to comply, through a memorandum, dated 26 January 1932, issued by the Ministry of the Interior of PRUSSIA. The existence of these prototypes of the League at that date is a further indication of the early consideration that was given to air-raid protection in GERMANY. The final consolidation was effected, 29 April 1933, under the corporate title of the German Air-Raid-Protection League, under the patronage of Göring, Minister for Air. It was stated in the cited memorandum that the purpose of the new organization was to inform the German people of danger inherent in air raids, of the necessity of developing an air-raid-protection service, and to promote measures to that effect in cooperation with competent authority. Membership in the League was presumed to be voluntary and it rose to a reported total of more than 13,000,000. Dues were assessed in proportion to income and station of the individual member. Proceeds from assessed dues and voluntary contributions were ostensibly for the maintenance of the organization and to some extent for free distribution of minor items of air-raid-protection equipment among the poorer classes. Collection of dues and contributions was made under the supervision of the Nazi party, and no accounting was made of expenditures. Although the decree specifically directed that the Air-Raid-Protection League act in accordance with instructions of the Air Minister, its tasks were not specifically defined by the minister until 28 June 1940. The tasks assigned to the League by this decree were to propagandize and enroll the German people in the air-raid-protection service, to organize and train personnel, to publicize techniques, to assist in distribution of

gas masks, to define local and defense sectors, and to call up persons for duty under the compulsory provisions of the air-raid-protection law. Membership in the League was restricted to German citizens. Some officers were paid and all were uniformed. Administrative divisions and sub-divisions corresponded to those of the police and extended down to warden sectors of police precincts (Reviere).

- (8) In the first decree the extended self-protection service (Erweiterter selbstschutz) was provided to protect public and private buildings, public offices, and commercial and industrial enterprises of lesser importance than those to be served by the factory air-raid-protection service, but of more importance than those included in the self-protection service. It was organized under the direction of the local regular police.

9. The foregoing describes the organizational structure of the air-raid-protection service as established by articles 1 and 2 of the first decree. Subsequent articles of that decree contained functional provisions necessary for its establishment and operation. Under them, the police authorities could conscript personnel for the air-raid-protection services, and methods thereof were prescribed; provision was made for refunds of expenses incurred; penalties for violations were fixed; authority to appoint special constables from certain categories was provided; the national railroads, post office department, and waterways were directed to establish air-raid-protection services in their respective fields; and the air forces was directed to organize the aircraft observer service.

10. In compliance with the provisions of the decree, a comprehensive plan was set up for observation and warning. A warden service for the protection of dwellings and for the reporting of incidents was provided.

11. The entire system was unified under the control of the regular police, an agency possessing full civil authority which could be extended when desirable to all members of the services. The chain of command was clearly established.

12. The first decree under the air-raid-protection law was comprehensive in its scope and prescribed in detail the organization and operation of the air-raid-protection services. (Chart with explanatory notes follows on page 24.)

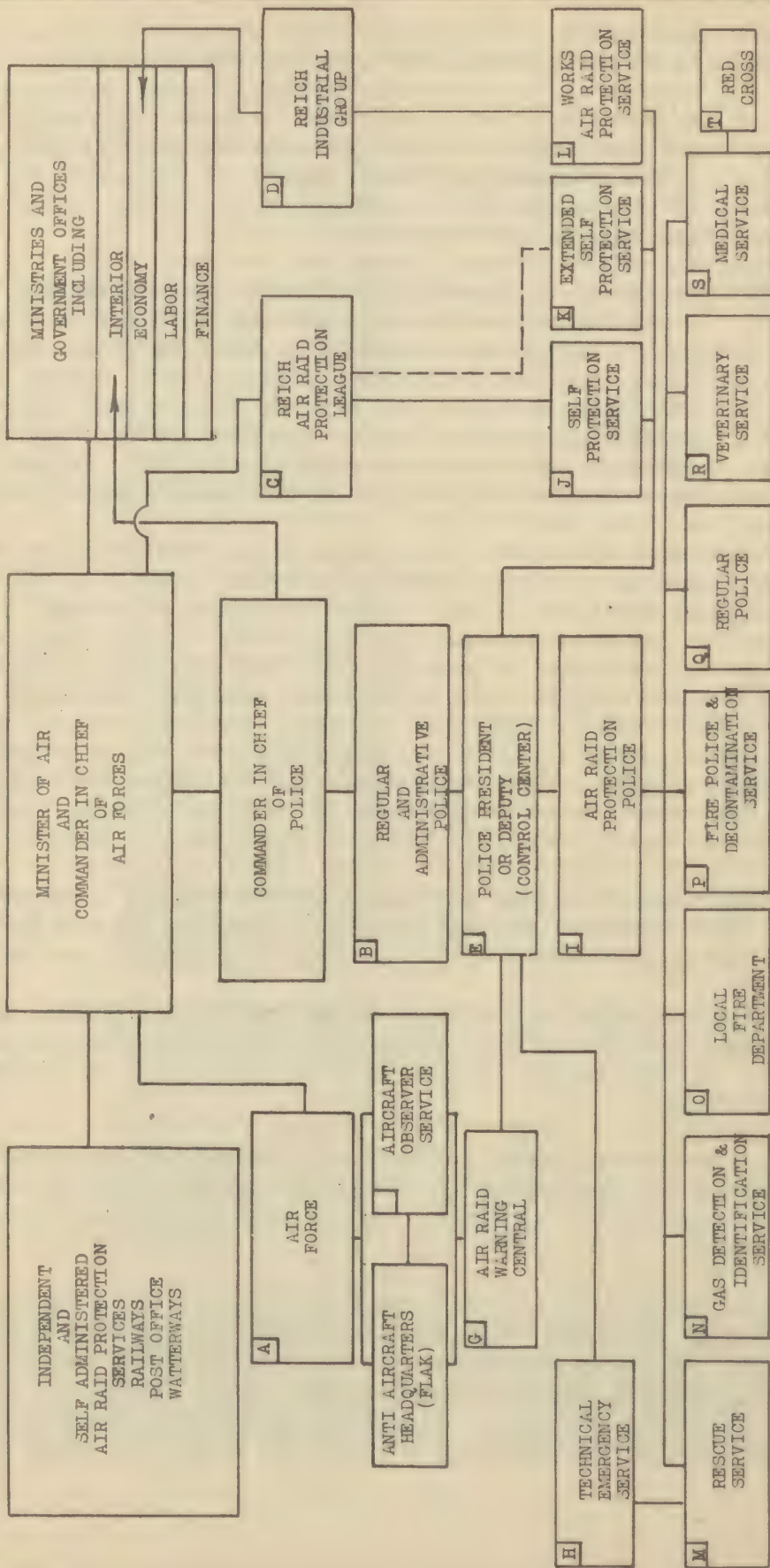
13. The German air-raid-protection service as outlined in this decree, fully manned by trained personnel, staffed by capable and experienced officers, and with proper and sufficient equipment, could be expected to minimize to the greatest possible extent the effect of enemy air attack. It is interesting to note that because of the consideration and study given to the problem over a period of nearly two years between



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION CHART

Based upon the German Air Raid Protection Law of 26 June 1935 as promulgated by REICHSGESETZBLATT No 69 4 July 1935 and the First Decree for the application of that Law dated 4 May 1937.  
GERMAN AIR RAID PROTECTION SERVICES



MUTUAL AID UNITS AND MOBILE RESERVES ARE ALSO AVAILABLE TO THE POLICE PRESIDENT FROM THE OUTSIDE. LETTERS REFER TO ACCOMPANYING NOTES. SEE CHART ACCOMPANYING "CONTROL CENTERS".

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### NOTES ON ORGANIZATION OF GERMAN AIR-RAID PROTECTION

Based upon the Air-Raid Protection Law of 26 June 1935 and the First Decree for the application of that Law dated 4 May 1937  
(To accompany attached chart)

The Minister of Air was made responsible for air-raid protection. He was to avail himself of the services of regular and administrative police authorities and of the German Air Administration. He was to use all facilities and services of civic authorities. He was to operate in complete agreement with competent government ministries on matters of policy.

The German railways, post office and waterways were directed to adopt air-raid protection measures within their own sphere of action, utilizing their own personnel and issuing orders for training operations and practices. Police authorities were to act only upon demand of such departments and said departments were directed to call upon local air-raid protection authorities for assistance in cases where their own staff might be insufficient.

A. LUFTWAFFE. Charged with operation and integration of aerial observation and air raid warning with other military agencies and police authorities.

B. DIE DEUTSCHE POLIZEI. Regular and administrative police establishments and authorities.

C. REICHSLUFTSCHUTZBUND. Sponsored unofficially by Goering, 29 April 1933. Organizes and forms Self Protection Services (J). Acts in advisory capacity only in Extended Self Protection Service (K) and in other fields of Air-Raid Protection.

D. REICHSGRUPPE INDUSTRIE. Functioned under Ministry of Economics. Charged with organization of Works (Factory) Air-Raid Protection Service (L).

E. POLIZEIDIREKTOR or POLIZEIPRASIDENT in towns with state police administration, elsewhere BURGERMEISTER. In general, air-raid protection areas coincided with those of local police divisions.

F. FLUGMELDEDIENST. Organized by Air Force to furnish reports of hostile aircraft to air-raid warning service.

G. WARNZENTRALE. Operated by local civilian personnel under the direction of the Air Force to relay warnings, audible and otherwise, to the public and to air-raid-protection services.



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H. DIE TECHNISCHE NOTHILFE. A technical volunteer organization under police direction with special duties in rescue and repair operations where no LUFTSCHUTZPOLIZEI is constituted. Also advised police in technical details concerning such operations.

I. LUFTSCHUTZPOLIZEI. (Until 31 May 1942 known as SICHERHEITS UND HILFSDIENST (Security and Assistance Service)). To afford assistance in case of injury to persons or damage to property. To maintain security and order under threatened or actual air attack. They comprised fire-fighting and decontamination, rescue and repair, first-aid and ambulance, veterinary and gas-detection units. In fulfilling the functions of this service in places where no such service was constituted use was made of State and Municipal Fire brigades, health service, building or public works departments, street cleaning and public utility services.

J. SELBSTSCHUTZ. Enrolment in this service was incumbent upon almost the entire population. It was concerned primarily in protection and precautions to be observed in dwellings and minor enterprises which were the responsibility of the occupiers. It comprised the entire warden service of German air-raid protection. See (C) above.

K. ERWEITERTER SELBSTSCHUTZ. A service to protect buildings and facilities of commercial and industrial enterprises and the occupants thereof where Self Protection Service (J) was inadequate and Works Air-Raid-Protection Service (L) was unnecessary.

L. WERKLUFISCHUTZ. To protect industrial and commercial enterprises and the persons engaged therein with a view to the maintenance of their uninterrupted operation. Organized under the direction of the representative of the Reich Industrial Group (D) in whose area such enterprises are located.

M. Rescue Units to deliver trapped persons from ruined buildings. Equipped with tools to perform shafting and tunnelling operations and frequently with motor cranes and shovels for heavier duty. (See H above).

N. Gas detection and identification laboratories were set up to enable chemists designated for that purpose to analyze and determine the character of samples collected in case of gas attack.

O. Units of local fire departments were dispatched at the direction of the police president during air raids.

P. FEUERWEHREN. Fire units of part-time personnel, recruited either voluntarily or compulsorily, who supplemented the fire departments in larger towns, or provided the fire service in smaller towns and villages. They were trained fire officers of the air-raid-protection police, and had standard fire equipment.

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Q. SCHUTZPOLIZEI DER GEMEINDEN. Detachments of the regular police of the municipality were dispatched during air raids when needed for traffic control, cordoning, guard or other similar duty.

R. A veterinary service with stables and first-aid facilities was established to confine stray animals or to treat those injured during raids.

S. Medical facilities at the disposal of the control center consisted of first-aid stations and medical teams. The former were staffed by doctors and nurses during air-raids and the latter consisted of ambulances with drivers and stretcher-bearers under the direction of doctors. Liaison with hospitals was maintained to properly distribute cases. Mortuary duties also devolved upon this service.

T. DEUTSCHES ROTE KREUZ. Entrusted with special duties where no LUFT-SCHUTZPOLIZEI is constituted and is generally to act in cooperation with the medical service.



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the passage of the basic law and the issuance of the first decree, the structure established at that time remained practically unchanged during the entire course of the war.

14. The organization and operation of German air-raid protection followed the general pattern of civil defense in BRITAIN and of civilian defense in the UNITED STATES, except for its distinctive feature of complete control and operation at the municipal level by a strong nationalized regular police and, at the higher levels, by the air force.

15. A law nationalizing the German fire-fighting forces became effective 23 November 1938. It was intended to transform the system from a series of independent and isolated departments to a group of units supporting one another in any emergency without reference to political or geographical boundaries. The intent of the law was never fully carried out, and fire departments remained under local control and were maintained by local funds. Nevertheless, this law did result in important changes in the fire service, which were to prove of inestimable value when air raids began. For example, a national system of fire training was instituted, and hose, hose couplings and pumpers were all standardized so that those items of equipment were interchangeable throughout the nation. Many municipalities substantially increased the number of fire-fighting appliances and added to their established quota of personnel. Shortly after the outbreak of war, fire-fighting forces were further strengthened through an order, dated 24 October 1939, compelling the organization of voluntary and compulsory fire units in rural areas and small towns under the direction of the fire officers of the security and assistance service in the nearby cities.

16. The situation, then, in the early stages of the war found the fire-fighting forces of GERMANY strengthened by some measure of unity of control, by additional appliances and augmented personnel. In an emergency, aid could be obtained from neighboring communities and even from distant cities. Subsequently, the need for a mobile reserve was appreciated, and from the static units of the security and assistance service, so-called motorized or mobile units were formed (S.H.D. (Mot)). The fire-fighting components of these units, together with fire-fighting units of the army and of the special administrative departments and those of the factory air-raid-protection services of the larger industrial plants formed such a reserve. Difficulties were experienced in obtaining physically qualified personnel for these forces because of the demands of the army and important war industries. The depletions necessitated the employment of members of the Hitler Youth organization and over-age or physically handicapped persons. Time permitted only elementary training. Finally by an order issued in June, 1943, women between the ages of 17 to 40 were made liable for service in the local fire-fighting forces.

17. The increase in the scale of attack and the number and wide distribution of the targets occurring subsequent to April, 1942, brought

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realization to the German air-raid-protection leaders that immediate and drastic actions must be taken. Prior to that date a revised manual of the air-raid-protection service had been issued (4 February 1942), describing its duties and organization, differing in no important respect from the original plan. In that manual, there was no intimation that the services were more than a local responsibility.

a. On 1 April 1942, the air force took over responsibility for mobile reserves and the S.H.D. (Mot) became the motorized air-raid-protection battalions of the air force (L.S.Abt. (Mot)). Shortly afterwards, on 31 May 1942, the name of the static security and assistance service was changed to that of air-raid-protection police (Luftschutz-polizei), complete control being retained by the regular police.

b. In July, 1942, work units of the army and air force were authorized at the call of the mayor or police president. It was contemplated making these units available to communities for post-raid clearance and rescue through the commanders of the army corps areas (Wehrkreis).

c. Industrial concerns or contractors possessing or operating power shovels, cranes, air compressors, or like equipment, were required to place them at the service of air-raid-protection leaders upon demand.

e. Air-raid-protection leaders were required by Himmler, 4 August 1942, to survey all available forces, and authority was given them to call for reinforcements.

f. A decree of 6 October 1942, required all persons over 14 years of age to undergo air-raid-protection training under the supervision of the Air-Raid-Protection League.

g. During October, 1942, an order was issued by the Minister for Air describing arrangements for mutual aid to be made by air-raid-protection leaders especially with respect to fire-fighting units.

h. The Minister for Air, on 17 December 1942, also issued instructions continuing air force district commanders in their responsibility for air-raid protection within their districts (Luftgaue). These commanders had under their control air-raid-protection battalions (motorized) of the air force (Luftschutz Abteilungen (Mot) der Luftwaffe) for fire fighting, decontamination, rescue and repair.

i. Within army corps areas, chief inspectors of the regular police were made responsible within their areas for the movement of their own motorized fire-fighting battalions (Feuerschutzpolizei Regimenter (Mot)) and were given authority to move local units of the air-raid-



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protection police from one area to another.

18. It is apparent from the foregoing that efforts were being made during 1942 to strengthen the local air-raid-protection services by inducting every qualified person into those services and by providing for his training. Effort was also devoted to initiating a logical system of mutual aid and the establishment of well-trained and equipped specialized mobile units stationed at strategic points, ready for instant movement to localities under attack.

19. The attempt to improve the air-raid-protection service was a continuous process, affected by the urgency of the situation and the shortage of manpower.

a. One result of the latter was the recall of the Todt Organization from FRANCE, in 1943. This service had been created primarily to construct defense works, and, at that time, it was participating in the construction of the West Wall. Upon its return to GERMANY, it undertook large-scale, debris-removal projects, the building of shelters, and repair of damage in industrial plants.

b. A further concentration of effort was achieved when, in October, 1943, the factory air-raid-protection and extended-self-protection services were directed to place their forces at the disposal of the air-raid-protection leader of each community.

c. On 19 October 1943, an order was issued requiring "Eastern workers" to serve in the factory air-raid-protection service.

20. The German system of air-raid protection was well conceived in its several aspects, such as the self-protection service, the extended self-protection service, the factory air-raid-protection service, the public utility services, mobile reserves, and mutual assistance. It suffered, however, from the common defects of German, and particularly Nazi, procedures: complexity, overlapping, and conflict of authority. It is believed that this study of the system will demonstrate clearly its excellent features as well as its defects, both of which should be given due consideration in the future planning of civilian defense measures in the UNITED STATES.

#### IV. AIR-RAID WARNING

1. Introduction. The German system of air-raid warning, as shown on the accompanying chart (page 32), entitled "Air-Raid Warning", is treated in two phases: the first, "Detection", indicating the sources of information and the channels through which it passed; and, the second, "Air-Raid Signals and Warnings", describing the methods by which this information was disseminated to essential installations and to the general public.

##### Detection

2. Information of the approach and flight of enemy raiders was received from the following sources:

a. Air Force Fighter Division (Jagddivision). In addition to its basic function, that of operating fighter planes, this unit also controlled the aircraft reporting service (Flugmeldedienst), described below, and detection units called "F.T." (Funk Telegraphie), which used radio interception or listening devices. With that facility, radio conversations of Allied planes could be intercepted even before they took off for attack. Another source of early information available to this fighter headquarters was boats at sea. Information was flashed by them to naval bases and thence to Air Fleet (Luftflotte) headquarters, from where it was telephoned to the fighter division headquarters. Information from the fighter division headquarters was sent simultaneously to the anti-aircraft headquarters and to the warning central by telephone.

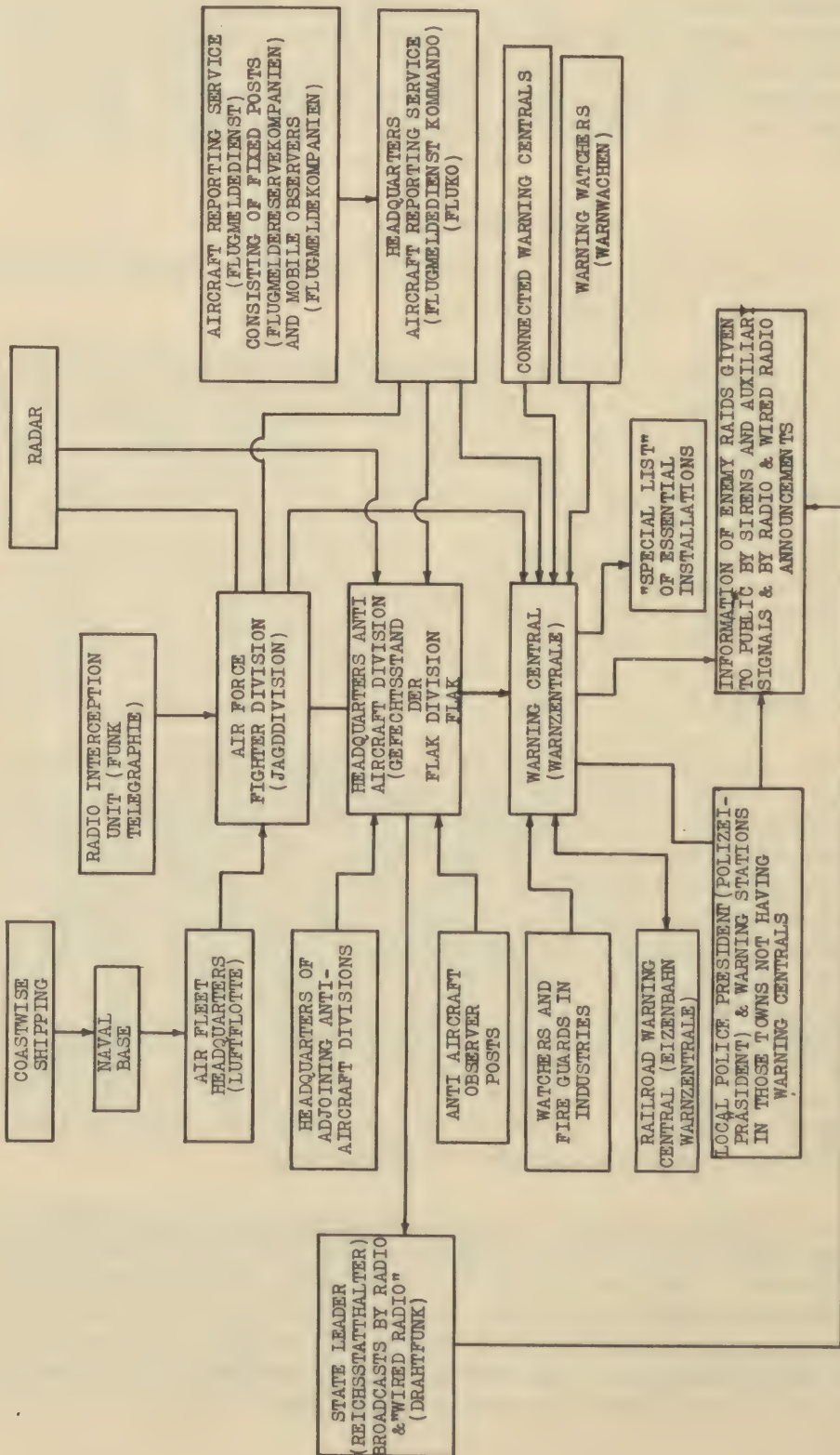
b. Aircraft Reporting Service Headquarters (Flugmeldedienst Kommando) (Fluko). This unit was an integral part of the fighter division under its aircraft reporting section (Department Flugmeldedienst) and was composed of two divisions: the first, a series of static observation posts (Flugmelderreservekompanien); spaced throughout the country so as to insure adequate observation; and, the second, a motorized organization (Flugmeldekompanien), charged with the duties of replacing any of the static posts which had been destroyed, of widening the scope of observation of the regular fixed system, and of bolstering static posts at any point where reinforcement was indicated. Information from the aircraft reporting service headquarters was communicated by telephone to the anti-aircraft headquarters, to the air force, and to the warning central. A liaison officer from the warning central was on duty at this reporting service headquarters.

c. Headquarters of the Anti-Aircraft Artillery Division (Gefechtsstand der Flakdivision) (Flak). This unit received information from its observation posts located at or near the anti-aircraft batteries, and from radar stations, both connected with it by telephone. Telephone communication was also maintained with adjoining anti-aircraft artillery divisions, for the receipt and transmission of enemy information, and with the warning centrals which were included in the warning



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## AIR RAID WARNING



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area served by the anti-aircraft artillery headquarters, not only for transmission of enemy information, but also for giving directions for the sounding of sounding of public air-raid alarms.

d. Warning Watchers (Warnwachen). These observers were a part of the local air-raid-warning service (Luftschutzwarndienst) and did not belong to the aircraft reporting service (Flugmeldedienst) of the fighter division. They were stationed in high places around the periphery of the city in which was located the warning central of which they were a part, and were connected to their warning central by telephone. In addition to reporting the approach and activity of enemy planes, they also supplied information of fires and bombings in the town. That information was telephoned to the warning central and from there to the control room of the air-raid-protection leader (Luftschutzleiter).

e. Watchers and Fire Guards in Large Industries. Information from these sources was reported to the control room of the industry and from there relayed to the warning central.

f. Railroad Warning Central (Eisenbahnwarnzentrale). Each railroad division maintained its own warning central, to which information of enemy activity along the railroad system was reported, and which directed the giving of air-raid warnings throughout the railroad division. Information received at this center was supplied to the local warning central.

g. Air-Raid-Protection Leader (Luftschutzleiter). Information of local air-raid activity received at the control room (Befehlsstelle) of the police president or air-raid protection officer was sent by telephone to the warning central.

### Air-Raid Signals and Warnings

3. Authority. Authority to sound the public warnings rested with the commanders of the anti-aircraft artillery divisions or, those areas where no such military units were located, with the commander of the warning central (Warnzentrale). It was the duty of the warning service to give sufficient warning of impending raids, and to insure that interruption of war production and traffic was restricted to a minimum by a state of air-raid alarm. Both of these headquarters maintained operations maps and were equipped with facilities for the reception and transmission of enemy air-raid information and for the dissemination of air-raid warnings. A liaison officer from the warning central was attached to each anti-aircraft artillery headquarters and it was his duty to convey information of enemy air activity from the artillery headquarters to the warning central. He also transmitted to the artillery commander the recommendation of the leader of the warning central concerning the sounding of the public warnings in the event the former had failed to give such direction, and when, in the opinion of the leader of the warning central, the enemy flight was sufficiently close to



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justify the sounding of public warnings. In the case of a breakdown of communications between the artillery headquarters and the warning central, the leader of the warning central had authority to direct the sounding of the public warnings. In smaller communities, in which there were no warning centrals, directions for sounding public alarms were received by telephone from the nearest warning central. In the event of surprise attacks, leaders of the warning centrals and air-raid-protection leaders in small communities were authorized to sound air alarms.

4. Types of Signals and Warnings. During the early part of the war only two signals were used, i.e., the "General Alarm" (Fliegeralarm) and the "All-Clear" signal (Entwarnung), both discussed hereafter. Upon the sounding of the "General Alarm", all activity ceased, traffic stopped, and industry was halted until the sounding of the "All-Clear" signal. That procedure meant a cessation of activity and production from the time the approaching raiders became a threat, during their presence in the vicinity, and until they had flown away to such a distance that they could no longer be considered a source of immediate danger. As the frequency of raids increased, the aggregate periods of inactivity on the part of communities and essential industries seriously affected the production of war materials. The need for a change in the system of air-raid-warning signals therefore became apparent - a change whereby civilian activity and essential production could be continued as long as it was reasonably safe to do so. Accordingly, during the latter part of 1941, the following system of signals was adopted:

a. Confidential Warning - "Raid Possible". (Luftlagemeldung). (Literally, "Air Situation Announcement"). This confidential telephone message was given by the warning central to a special list including war industries, local civilian-defense leaders, military establishments, hospitals, schools, public utilities, railroads, police, civilian and Party officers, adjoining warning centrals, and other vital installations to which early notice was essential. These messages, giving definite information of enemy planes and estimated time of arrival, were transmitted by, and upon the authority of, the commander of the warning central. They were started at an early stage when hostile aircraft were perhaps 40 minutes' to an hour's flying time away, and were continued periodically during the raid until the "All-Clear" was sounded.

b. Public Warning - "Small Raid Possible" ("Öffentliche Luftwarnung, literally, "public air warning"). (The term "Kleinalarm", literally "small alarm", was also applied to this signal). This public alarm was sounded only if the enemy flight consisted of fighters or nuisance raiders, not more than 12 bombers, or more than 12 bombers on a return flight without bombs. This siren signal was given during the daytime when the raiders were about 10 minutes away (approximately 60 miles), and at night when the flight was 15 minutes away (approximately 90 miles). The alarm was identified by three wails of the siren, each of 15 seconds duration with intervals of five seconds. Traffic



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did not stop upon the sounding of this signal, and no one was required to take shelter, with the exception of school children. It is to be noted that this alarm was sounded in lieu of, and not as a preliminary signal to, the "General Alarm" (Fliegeralarm), next described. The size and composition of the enemy fight determined which of the two signals was to be sounded.

c. Public Warning - "General Alarm" (Fliegeralarm, literally "Flier Alarm", or better, "Plane Alarm"). (This signal was also referred to as "Grossalarm", literally "Great Alarm" or "Big Alarm", in contrast to "Kleinalarm", "Small Alarm", but "Fliegeralarm" was generally used.) It was sounded for enemy flights consisting of more than 12 bombers and was given during the day when the raiders were at least 10 minutes away, and at night when 15 minutes away. Reports indicate that this signal was used later to warn of formation of fast fighter aircraft. It consisted of rapid wails of the siren, of about four seconds each, lasting one minute. Upon the sounding of this alarm all traffic stopped, all persons including those engaged in air-raid-protection were required to take shelter and all industry ceased, except in those plants which were equipped to receive and disseminate the 12 and six minute warnings (hereinafter discussed).

d. Public Warning - "Immediate Danger" (Akute Luftgefahr, literally, "Acute Air Danger"). As the Allied armies closed in on GERMANY, many of the sources from which early information of enemy flights was received were cut off and the minimum of 10 to 15 minute public warning provided by the system of signals as then used could not always be provided. Consequently, during the latter part of the war, in March or April of 1945, this signal was adopted to warn of a surprise attack. It was identified by one quick howl of the sirens of about eight seconds duration (described as four seconds of a low tone, a rapid, shrill wail of two seconds, and a return to two seconds of a low tone). The same action respecting cessation of all activity as was required on the "General Alarm" (Fliegeralarm) was required on this signal. A quick dash to shelters was necessary in view of the immediate probability of the enemy attack.

e. Public Warning - "Pre-All-Clear" (Vorentwarnung). This signal indicated that the main attack had passed but that

- (1) some of the attackers were still in the area; or
- (2) another wave of enemy aircraft was flying a course toward the area, with the likelihood of another attack.

This warning was used only if the "General Alarm" or "Immediate Danger" warning had been previously announced, and was given by the same type of siren alarm as was used to indicate the "Small Raid Possible" warning, (Kleinalarm), i.e., three wails of the siren, each of 15 seconds duration with intervals of five seconds. Upon the sounding of this signal,



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essential industry started operation, traffic was resumed, essential services (fire, police, air-raid service) left the shelters to proceed to their posts, and the general public returned to normal activity. Because of the extreme urgency of war production and the necessity for the essential services to proceed with their duties as early as possible, this signal was sounded as soon as it was considered reasonably safe to do so.

f. Public Warning - "All-Clear" (Entwarnung). This signal was sounded as soon as the warning area was clear of enemy bombers, or, in the case of enemy bombers on return flight without bombs when they had cleared the "target" (Schutzobjekt), and no other flight was reported from which an attack was considered probable. The signal was identified by one continuous wail of the siren of even tone for one minute.

g. The 12 and Six Minute Warnings. As indicated before, information of enemy raiders was transmitted by the confidential telephone warning "Raid Possible" to the special list of war industries and essential installations requiring preliminary warning, and to the public generally by the use of radio and "wired-radio", discussed below. Included in the information given by these agencies were special announcements made when the enemy planes were 12 and six minutes away. Their purpose was to give definite and reliable time checks on the expected arrival of enemy aircraft. Industries and essential services, equipped with apparatus (buzzers, bells, lights, flags, or any means which could not conflict with the public alarms) to disseminate such warnings throughout their particular installations, were not required to cease operations on the sounding of the "General Alarm" but were permitted to continue until the six minute warning had been announced throughout the plant.

### h. Methods of Announcing Public Air-Raid Warnings.

- (1) Sirens. Public air-raid warnings were, in the main, announced by means of air-raid sirens erected on high structures, strategically located to insure the widest possible coverage. By the national decree the standard siren (made by Siemens of BERLIN) was a five kilowatt electric unit, mounted under air-raid-protection police supervision on the top of either a private or public building. These sirens were paid for by the national government. Their audible radius was easily 547 yards in bad weather and it was on that basis that they were distributed. In a typical city the area covered would be the equivalent of one siren for each 3,000 citizens. However, it must be remembered that the apartment type of dwelling in GERMANY results in a high density of population per unit area.

In operation, the sirens took their power directly from the existing house circuits (at 220 or 380 volts). A control relay for each was operated by the low current fire alarm circuit running across roof-tops nearby, and this control circuit was manually activated by a switch in the fire house headquarters. Being synchronous motors on 50-cycle alternating current, all sirens were electrically synchronized, or timed. American practice has been to use fewer numbers of larger units. The German philosophy was that in cases of bombing, no areas would probably ever be out of range of some remaining units to signal the "All-Clear" or to announce repeat raids. However, dependence upon a fire-alarm headquarters was a weakness. In one case, after a heavy raid in February, 1944, all electric sirens of a city were inoperative for about a month.

- (2) Radio and Wired-Radio (Drahtfunk). Radio and wired-radio played an important part in the announcement of enemy air activity and air-raid warnings. Both of these facilities were used to give warnings and to follow the progress of raids. "Drahtfunk" was the term applied to the process of using telephone lines for the reception of radio broadcasts which had been picked up on centrally located receiving sets. The radio stations, every hour on the hour, gave brief announcements indicating the presence or absence of enemy aircraft over GERMANY, but gave no details of the composition, location, direction, or other specific information. Special military broadcasting stations were used for announcing specific information to military units and installations. Information from these stations was definite and gave the location of the planes (using specially lettered and numbered map coordinates), speed, direction of flights, altitude, number and type, and description of the flight (close or extended). These broadcasts started immediately upon detection of enemy raiders. Although this information, precise in its nature, was intended solely for the use of the military defense forces, the public soon learned the wave-lengths of these transmitters and, having secured a map with grids corresponding to those used by the military, they were able to plot enemy flights. Information of enemy raiders was broadcasted by the state leader or governor (Reichsstatthalter) over radio and wired-radio. These broadcasts, starting simultaneously with the giving of the first public siren warning and continuing until the departure of the raiders, gave



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information of the general location of the planes, the sounding of the public alarms, bombing activity and damage, and any other details deemed appropriate for the guidance and information of the general public. The authority to establish radio silence was vested in the state leader or governor and was put into effect by his broadcasting of code announcements, or the use of flash messages to the radio broadcasting stations.

i. Emergency Methods. In the event of the disruption of the siren system, the following emergency methods of sounding alarms were used;

- (1) Mobile sirens or loud speakers mounted on motor cars.
- (2) Portable hand sirens carried by wardens or policemen.
- (3) Anti-Aircraft Artillery. To disseminate alarms by the use of anti-aircraft units, the following signals were adopted:
  - (a) "Small Raid Possible" (Kleinalarm). Three shots from heavy anti-aircraft guns, with 13 second intervals.
  - (b) "General Alarm" (Fliegeralarm). Five shots from heavy guns with five second intervals.
  - (c) "All-Clear" (Entwarnung). During the daytime nothing was used to indicate this signal. At night searchlights were focused on a common point in the sky over the area alarmed.

j. Auxiliary Methods. To supplement the siren signal, the following were used:

- (1) Colored Flags, balls, cylinders, or placards, were hoisted generally at the entrance to towns, along highways, waterways, in the harbors (see Section XIX, paragraph 8), and in the railway system. Flags (day) and lanterns (night) were placed at guide posts (stations in the outskirts of town to which reinforcements reported). Such signals were raised at the sounding of the first siren alarm and were lowered upon the announcement of the "All-Clear".
- (2) Radio and wired-radio receivers were increased in volume and placed at open windows by individual owners upon official request, to announce air attack information.

- (3) Wardens were required to insure that air-raid warnings were received by all persons under their care, especially the sick and deaf.



## V. CONTROL CENTERS

1. Introduction. The control center (Befehlsstelle) was the nerve center and command post of the air-raid-protection service. Its functions were:

a. To serve as a message center for the receipt and transmission of information concerning incidents of air-raid activity within its area;

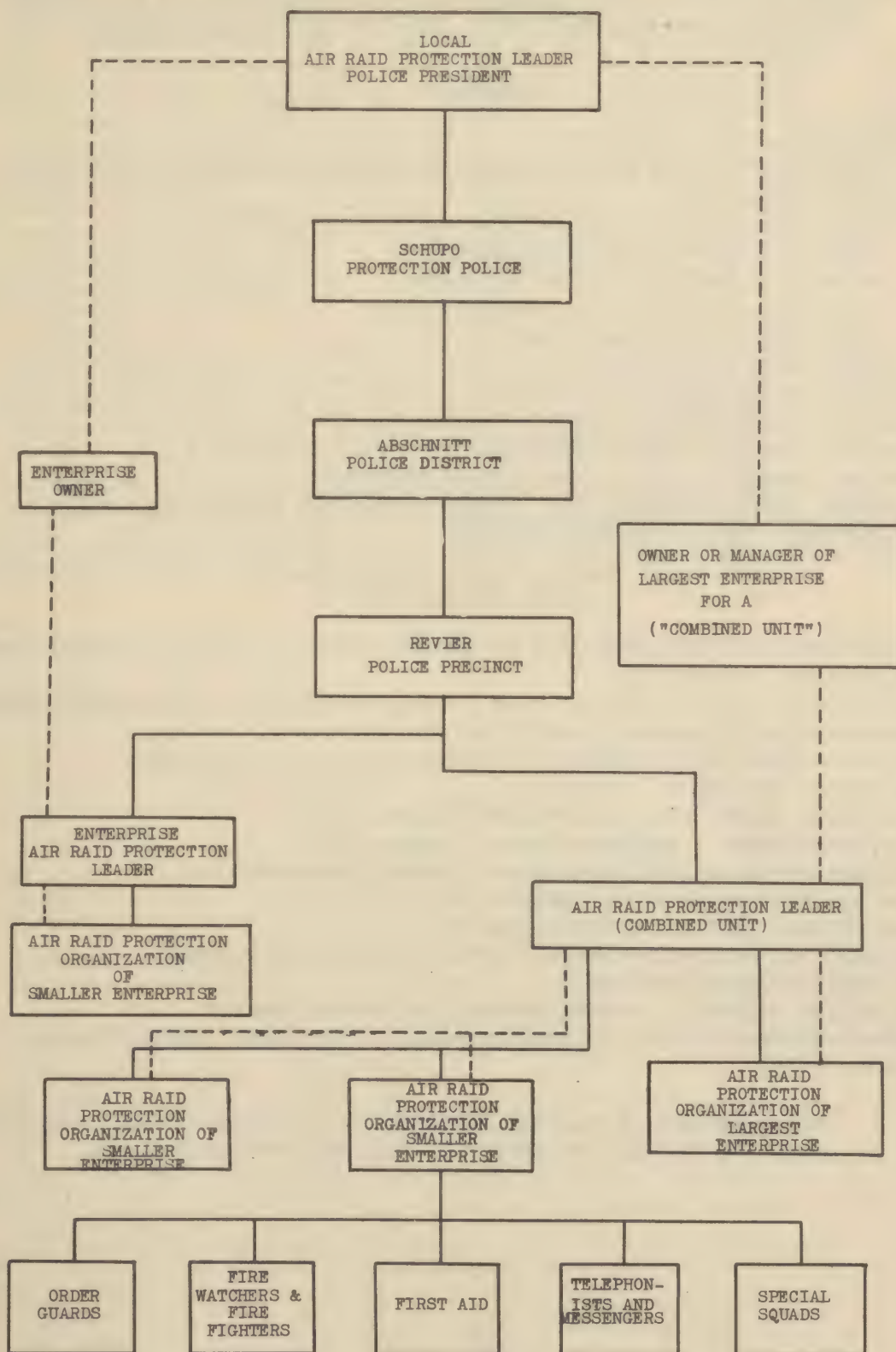
b. To dispatch available services to the scene of an incident, and to exercise over-all control of the operation of services under its command;

c. To receive and render reports of the results of raids in the area concerned; and

d. To request mutual aid and reinforcement of air-raid services from the outside.

2. Operation. The dropping of bombs required prompt action upon the part of wardens and residents of the house which was damaged. They assembled quickly and, using the tools with which each house was equipped (sand, water, stirrup-pumps, shovels, axes, fire-beaters), made an immediate effort to remedy the situation caused by the bombing. If these self-protection (Selbstschutz) forces by themselves, or with the help of reinforcements of other self-protection groups, could not control the situation, a report of the incident and a request for aid were made by the house or block warden to the police precinct (Revier) headquarters. That headquarters had no air-raid-protection services at its disposal (except, in some cases, first-aid medical groups), and it furnished assistance by calling upon other available self-protection groups within the precinct. If assistance was insufficient or unavailable there, precinct headquarters appealed to the control room which had the air-raid-protection police at its disposal. In larger cities this call was made to the police district (Abschnitt) control room (the district comprised several precincts), and, in smaller communities it was made to the control room of the air-raid-protection leader (Luftschutzleiter), both control rooms being under the command of the police president (Polizeipräsident) or a deputy. (The list on page 41 shows the air-raid-protection services available to the police president through the control center.) These command posts were manned by a leader, by assistants who were experts in the various services represented, and by necessary operational, administrative and clerical assistants. An operations map was maintained in these headquarters on which each reported incident was recorded. There was also maintained a map for the plotting of enemy air activity. From the information plotted on those two maps, decision was made regarding the services necessary to cope with the recorded incidents, and units were accordingly dispatched. The representative of each air-raid-protection service maintained a

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY



KEY - CHAIN OF RESPONSIBILITY -----  
CHAIN OF COMMAND -----



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**AIR-RAID-PROTECTION (LUFTSCHUTZ) SERVICES AVAILABLE TO THE POLICE  
PRESIDENT (POLIZEIPRÄSIDENT) THROUGH THE CONTROL CENTER**

**Locally**

**Air-Raid-Protection Police**

**Fire-fighting and Decontamination Service (Feuerlösch und Entgiftungsdienst)**

**Repair and Rescue Service (Instandsetzungsdienst)**

**Medical Service (Sanitätsdienst)**

**Veterinary Service (Veterinärdienst)**

**Gas Defense Service (Gasabwehrdienst)**

**Protection Police (Schutzpolizei)**

**Local Municipal Fire Department**

**Nazi Party Welfare Service \***

**Storm Troop Battalions (Sturm Abteilungen) (SA) \***

**Emergency Juvenile Police Reserves (Schnellkommandos) \***

**Technical Emergency Corps (Technische Nothilfe) \***

**Protection Service Battalions (Schutzmannschaft Bataillone) \***

**Trades Groups (Wirtschaftsgruppen) \***

**From the Outside**

**Air-Raid-Protection Battalions of the Air Force (Luftschutz Abteilungen (Mot) der Luftwaffe)**

**Fire Protection Police Battalions (Feuerschutzpolizei Abteilungen (Mot))**

**Volunteer Fire Brigades (Freiwillige Feuerwehren)**

**Protection Service Battalions (Schutzmannschaft Bataillone) \***

**Army Troops (Wehrmacht Truppen)**

**Storm Troop Battalions (Sturm Abteilungen) (SA) \***

**Todt Organization - Regiment Speer (Bauamt OT)**

**Emergency Juvenile Police Reserves (Schnellkommandos) \***

**Technical Emergency Corps (Technische Nothilfe) \***

**Trades Groups (Wirtschaftsgruppen) \***

**Telegraph and Works Troops (Telegraph und Bauamttruppen)**

**Nazi Party Welfare Service \***

**Food Relief Columns - Bayern Convoys and Fuchs Convoys**

**Air-Raid-Protection Police reinforcements from other communities -  
mutual aid**

\* These services available locally in principal cities, and obtainable as mobile mutual-aid reinforcements from other cities.

wall chart of the units comprising that service, on which was indicated the assignments or availability of each group. The size of the force to be sent depended upon the extent of the incident, the strength of the forces available, and the relative importance of the incident with respect to the amount of damage being inflicted, or which could be anticipated, in the area under the jurisdiction of the control centers. In the event the services at the disposal of these headquarters proved inadequate, calls for reinforcements were made to the main control center (in the case of district headquarters) or to outside agencies (adjoining towns), air force (Luftwaffe) or army (Wehrmacht) units, or higher police headquarters. For purposes of continuity of control in the event of damage to the control center, auxiliary headquarters could be established in adjacent or subordinate control centers.

3. Communications. Reports of incidents and requests for assistance made to control centers were by telephone and messengers. Communication to adjacent, higher, and auxiliary control centers was maintained by telephone, with emergency service by messengers and radio.

4. Reports. In addition to the reports of incidents and requests for assistance made during a raid, reports of casualties suffered and damage inflicted were made by the leader to higher headquarters as soon after the raid as the information could be secured.



## VI. AIR-RAID WARDENS

1. Introduction. The basic principle governing the organization of the self-protection (Selbstschutz) plan was that the primary duty of protection of the house rested upon the occupants under the guidance and leadership of the air-raid wardens. The chain of command and sphere of authority of the warden system is shown on the accompanying chart entitled "Air-Raid Wardens" (see page 44). It was noted, however, that all levels of the chain of command did not exist in every city. The warden's zones of supervision depended upon the number of occupants of the buildings and the size of the area that they could conveniently control. Throughout the chain of command, personnel of the warden service were members of, and trained by, the National Air-Raid-Protection League (Reichsluftschutzbund).

2. Appointment. House wardens and block wardens were appointed by the local police upon recommendation of the National Air-Raid-Protection League. Sub-group leaders and precinct group leaders were appointed by the League, usually in recognition of meritorious service in the lower echelons. The district group leader was appointed by the police. The area group leader and higher officers in the chain were appointed by the League.

### 3. Duties.

a. House Warden (Hauswart). In preparation for the self-protection of the premises under his care, the house warden's chief duties were to organize a fire guard and to insure they were adequately equipped with the prescribed air-raid paraphernalia, and that the house shelters were properly constructed and equipped. Further pre-raid duties were to familiarize himself with the plan of the houses under his charge, to keep a current list of names of occupants, to insure the correct marking of buildings to indicate shelters, to supervise blackout arrangements, and to familiarize himself with the location of all emergency services and installations available to his area. During the period of alarm, the house warden was chiefly concerned with the saving of life and property, prevention of panic and of looting, control of traffic, identification and reporting of unexploded bombs, and the reporting of incidents beyond his control to his block warden or to police headquarters. In the later stages of the war, his efforts were largely directed to the control of incendiary bombs and to mobilizing everyone in the building for fire fighting. At the conclusion of the raid, he was concerned with salvage, identification of the dead, rehousing of bombed-out persons, making of reports, and any other work necessary to facilitate the restoration of order. In the exercise of his functions, the warden had no authority to arrest, but, if necessary, could call upon the police to enforce his orders.

b. Block Warden (Blockwart). The block warden supervised the pre-raid duties of the house wardens in his area, and organized a

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

National Group Leader (Reichsgruppenführer). President of the National Air-Raid-Protection League (Reichsluftschutzbund) (RLB) - responsible directly to Goering.

Provincial Group Leader (Landesgruppenführer). Area of a province (former federal state) including approximately three regions (Gaue).

Regional Group Leader (Gaugruppenführer) (also called Bezirksgruppenführer). Area of a political region (Gau).

Area Group Leader (Kreisgruppenführer). An area approximating a U.S. county.

District Group Leader (Ortsgruppenführer). Area of a police district (Abschnitt) in large cities having districts; otherwise, municipal group leader.

Precinct Group Leader (Reviergruppenführer). Area of a police precinct (Revier). Approximately 15,000 to 20,000 persons.

Sub-group Leader (Untergruppenführer). Area of six to ten air-raid-protection blocks.

Block Warden (Blockwart). Area of "an air-raid-protection block" - 10 to 15 houses or a large apartment building.

House Warden (Hauswart). Area of one apartment house or group of small houses - 10 to 40 persons.

## AIR RAID WARDENS



self-protection reserve unit (Selbstschutztrupp), generally of five men, furnished with the usual fire guard's equipment, to be used as reinforcements at critical points. During a raid he coordinated all activities, supervised assignment of reinforcements within his block, and assumed the duties of the house warden when the exigencies of the situation demanded it.

c. Sub-group Leader (Untergruppenführer), Precinct Group Leader (Reviergruppenführer), and District Group Leader (Ortsgruppenführer). Duties of the sub-group leader, precinct group leader and district group leader consisted of inspections of pre-raid work of lower echelons, coordination of self-protection personnel during raids, and administrative details.

d. Area Group Leader (Kreisgruppenführer), Regional Group Leader (Gaugruppenführer), Provincial Group Leader (Landesgruppenführer), and National Group Leader (Reichsgruppenführer). Duties of the area group leader, regional group leader, provincial group leader, and national group leader were purely administrative. The regional group leader supervised promotions and pay within his region (Gau).

4. Training. Schools, operated and staffed by the National Air-Raid-Protection League, were conducted in the precincts for the precinct group leader and subordinate officers. The League also conducted special classes for the general public, and many wardens supplemented this public instruction by voluntarily conducting classes in their own areas.

5. Equipment. House and block warden's personal equipment generally consisted of a steel helmet, gas-protection clothing, heavy gloves, coverall, boots, gas mask, packet of decontaminating material, rope, flash-light, and a whistle or noise-maker for warning occupants of houses of air-raid attack.

6. Compensation. House wardens, block wardens, and sub-group leaders served on a voluntary basis. Higher echelon officials were on full-time duty and were paid salaries by the National Air-Raid-Protection League.

## VIII. INCIDENT CONTROL

1. Introduction. Organization of the German air-raid-protection services did not include a specifically designated incident control officer, although a definite and continuous chain of command was provided at each bombing incident.

2. Operation. When an incident occurred within a house warden's sector, he made an immediate survey of the situation and assumed control. If the handling of an incident proved to be beyond the capabilities of the personnel and facilities available to the house warden, and he called upon his immediate superior, the block warden, for assistance, the block warden assumed command. If subsequent developments produced a situation beyond the control of the block warden, and he called upon the police precinct headquarters for further assistance, a policeman was sent from headquarters to assume direction of air-raid measures at the incident and to perform regular police duties. If assistance was not available within the precinct or, if available, appeared to be inadequate, and a request for further reinforcements was made to the next higher echelon, the leader of the services responding assumed control and the policeman reverted to his normal police duties. In the event that more than one service was dispatched to the incident, the leader of the service whose action was first required became incident control officer. As that unit completed operation, the next essential service proceeded with its particular functions. For illustration, upon extinguishment of the fire and departure of the fire fighters, the rescue service then began operations and the leader of that unit came into control. If mixed services were employed simultaneously, control was exercised by the leader of the fire and decontamination unit. If only the repair and rescue and medical services were engaged, control was exercised by the leader of the former. Thus, as the air-raid-protection-police services completed their operations and departed, the control shifted to the leaders of the groups remaining, and eventually back to the policeman, block warden, and to the original control officer, the house warden.

3. Over-all Command. The foregoing sets forth the sequence of control at an ordinary incident. It is to be noted, however, that the police president or his representative had over-all command of operations conducted within his area. For illustration, a precinct leader could take from a house warden or a block warden the control of the operations then being supervised by those officers. On the other hand, control by the leader of an air-raid-protection-police service then engaged could be taken over only by the leader, or his representative, by whose authority the service had been dispatched. During raids, experts in the several air-raid-protection services were on duty in the main control rooms. These experts assisted the leader and advised him on matters pertaining to their particular fields. If the leader decided to exercise supervision of an incident, he, or one of the experts at the leader's direction, could go to the incident and supersede the officer then in control, but such assumption of command was, rarely, if ever, exercised.



## VIII. FIRE PROTECTION AND PREVENTION

### Fire Protection

#### 1. Fire Department Organization.

a. Local Control. Prior to the war, German fire departments, even in larger cities, operated with a combination of paid and volunteer companies. During the war, there was a movement underway to have the national government take over the fire service and operate it along the lines of the National Fire Service of the United Kingdom. However, that plan never fully materialized, and, although fire departments were nationalized to some degree, they still remained under local control and were financed by local governments. During air raids, however, control of the regular fire departments passed from the fire chiefs to the regular police and they came under the command of the police president who already had under his command the fire and decontamination units (Bereitschaften) of the air-raid-protection police. The fire officers became part of his staff and, in most cases, directed the actual fire-fighting operations.

b. National Assistance. During the war, the national government organized research and experimental stations to test the effect of incendiary bombs and to devise methods of controlling fires. It also instituted schools for the instruction and training of fire officers in new fire-fighting developments, as well as in ordinary methods of operation. The national government recommended the number of stations and personnel required in accordance with population, and that recommendation was generally observed. In cases where departments were believed to be poorly managed, more efficient leadership was provided by transferring officers from one city to another under the direction of the commanding general of fire-protection police in BERLIN. There were organized with the assistance of the municipal fire departments, mobile auxiliary fire-fighting units such as air-raid-protection battalions of the air force (Luftschutz Regimenter (Mot) der Luftwaffe) and fire-protection police battalions (Feuerschutzpolizei Abteilungen (Mot)) as strategic reserves to assist the local departments during air-raid emergencies.

c. Source of Personnel. To a large extent, fire department officers in large cities were graduate engineers who were required to serve one year as students in fire departments in several of the larger cities, after which they were employed by the various municipalities. In many cases they sought more important posts and transferred to other fire departments. The ordinary fireman could be promoted to take charge of companies but seldom attained higher rank.

d. Administration. Military discipline and the wearing of uniforms were strictly enforced, and fire stations were administered much as military installations. Centralization of fire-fighting

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companies has always been standard practice in GERMANY. For many years prior to the two platoon system of working hours, quarters were provided for the men and their families, and even now many of the officers are still provided with such accommodations. Since the war, the two platoon system in vogue throughout GERMANY has been abandoned as the need for men became acute, and, consequently, the hours of duty varied in the different cities.

e. Repairs of buildings and equipment were made by the fire department personnel with shop facilities provided by the city.

f. Records. Records and statistics were well kept. Some departments maintained photographic units for their record making value, as well as for fire protection and prevention education.

### 2. Equipment.

a. The German standard municipal fire department pumper is an enclosed apparatus with seating for the crew of one officer and eight men. They are gasoline or diesel operated, with a pumping capacity of 660 gallons at 120 pounds pressure, carry 550 feet of two-inch hose, 800 feet of three-inch hose, and 30 feet of suction hose. Two extension ladders of 26 and 47 feet, respectively, and a 10-foot ladder are regular items. The minor equipment consists of shut-off nozzles of aluminum alloy from one-half inch to one inch, one street pipe of one and one-quarter inches, one adjustable fog nozzle, two Draeger self-contained oxygen-breathing appliances, dividers, siamese, hydrant extensions, ropes, pike poles, axes, portable extinguishers, and a foam generator set. All firemen are required to carry on their service belts a hand axe, gas mask (filter type), light rope, and pompier or scaling ladder snap.

b. Municipal departments also have a number of mechanical turn-table ladders of the Magirus or Metz design. They are of welded light steel, or tubing, from 70 to 105 feet, fully extended. Most of them have permanently attached ladder pipes with hand-drawn detachable hose reels on the rear. The larger departments have hose carriers with capacities of 6,000 and 9,000 feet of two-inch and three-inch hose, respectively.

c. Other standard pumpers are enclosed types of 400 and 220 gallons capacity. Trailer pumpers of 220 gallons capacity were extensively used by the auxiliary forces and the smaller town volunteer departments.

d. Hose and couplings throughout GERMANY are standard, one of the results accomplished by partial nationalization. Some unlined hose is used, but, in general, it is single-jacketed, lined with pure or synthetic rubber, and in lengths of 50 and 65 feet. Jackets are of ramie, flax, or hemp. Couplings are of aluminum alloy of a quick-



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coupling type, attached to the hose with a wire binder.

e. A standard fire boat has been designed but because of the long life of this type of equipment, many of the older designs remain in service. The standard boat is propelled and pumps are driven by a diesel engine of 270 horse power, with a pumping capacity of 3,000 gallons at 150 pounds pump pressure. There are connections to two deck nozzles and 16 hose-line outlets. The boats are equipped with 4,000 pounds of CO<sub>2</sub> in cylinders and a supply of air foam. They carry two-inch and three-inch hose, together with nozzles and other necessary minor equipment.

3. Method of Operation. At ordinary fires, all opening up, ventilating, ladder work, laying and handling of hose lines are performed by members of pumper units. Hose is carried on hand-reels attached to the rear of pumpers, with the surplus rolled in lengths and stored in side compartments. The apparatus takes the hydrant nearest to the fire and, using a length of three-inch hose for supply, lays a line from the hydrant to the building on fire. That line is divided into two two-inch hose lines with half-inch nozzles to reach points of operation. In the event of a water shortage while operating at a hydrant, additional three-inch supply lines to augment the supply are laid from the nearest adjoining hydrants. Unless otherwise ordered, pumpers are operated at pressures not to exceed 75 pounds, in order to avoid the bursting of hose.

## 4. Training.

a. All departments were trained and drilled by their officers under a standard book of regulations for drills and training. Fire officers were regularly sent to a national training school for refresher courses. During the war many fire officers were given commissions in the armed forces for the purpose of organizing and training the various auxiliary and mobile forces.

b. Within the cities, the local department officers trained and drilled the volunteer groups (Freiwillige Feuerwehren) and Hitler Youth organizations (Hitler Jugend), together with the smaller private industrial fire departments. In the larger industries, the fire departments were usually commanded by an experienced fire officer and were, in most cases, well equipped, efficient, fire fighting units.

5. Fire Alarm Systems. The Siemens systems were in general use in the larger cities. Street alarm boxes were placed at regular intervals, with telephone connections for use of fire officers. Wiring for the most part was underground and there were generally from 15 to 18 boxes on a circuit. Box circuits terminated in the individual stations with tape registers and time stamps, and not in isolated central stations. In the large cities having more than one station, telephone alarms from the public were received generally at headquarters, and companies were

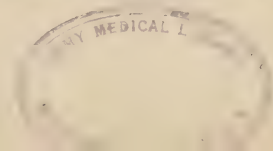
dispatched by orders given over a teletype system with which each station was equipped. These teletypes were also used for the transmission of orders and instructions. In addition, inter-communicating private telephone systems were provided in the larger departments. Realizing the possibility that air raids might knock out these systems, fire authorities organized a messenger service to carry orders between fires and headquarters. These messengers were provided with motor-cycles with side cars which were found best suited for getting through streets strewn with debris. No two-way radio between apparatus and central station nor portable two-way radio equipment was observed.

## 6. Water Systems

a. Only one municipal high-pressure water system for fire department use was noted. In general, fire hydrants were on domestic supply lines and, since the per capita water consumption was only from 50 to 75 gallons per day as compared with 200 to 300 gallons per day in the UNITED STATES, these systems were an inadequate source of supply for heavy concentrations of pumping engines. Although, in some instances, mains were observed as large as 30 inches in diameter, they were found to be feed lines from pumping stations several miles outside the cities. In general, mains were well gridded within the consumption areas, and were usually four and six inches in diameter. They were of cast iron, welded steel and concrete. Most systems were heavily corroded, according to fire officers' statements and samples examined. Pumping stations on any one system were arranged with alternate means of power to avoid shut downs in the event of failure of power from any one source. Steam, electricity and diesel in reserve were the common sources, although in one city water power turbines connected to double-acting piston pumps provided the main source of supply.

b. Flush-type fire hydrants with single two and three-quarter inch outlets predominated, although some post hydrants were observed.

7. Auxiliary Sources of Supply. Realizing that water supplies would be totally inadequate and would be further hampered by water main ruptures during bombing raids, GERMANY, early in the war, made provisions for static supplies. Sunken or semi-sunken containers of concrete, ranging from 50,000 to 250,000 gallons capacity were constructed in most cities and towns. On some streets, surface tanks of concrete were seen. Fire officers complained that these supplies were often pumped dry before the fires were extinguished, as there existed no mechanical means for refilling the containers. Every possible advantage was taken of rivers, canals, and ponds to which roads were built and at which space was provided for pumpers to take suction. In BRITAIN, the basements of bombed-out buildings were cleared of rubble, the retaining walls covered with a water-proof coating, the space filled with water which was used for static water supply. Emergency water systems were arranged to replenish the supply in static water containers when needed. In GERMANY, labor to remove the rubble was difficult to





obtain, and the areas in most cases were so completely wiped out that such a procedure was feasible.

### Fire Prevention

8. Bureaus. Bureaus of fire prevention in GERMANY were set up in accordance with the needs of the municipalities. Some laws were promulgated by the national government and were standard in all localities. They were often supplemented by local ordinances which differed in various cities. The storage and transportation of inflammable liquids, were strictly controlled under laws similar to those in effect in the UNITED STATES. Electrical installations were regulated under a code which was standard throughout the country. Theaters and other places of public assembly were well regulated and protected from a fire prevention and protection standpoint.

### 9. Building Construction.

a. In cities there were few, if any, frame buildings or out-buildings such as sheds or garages, and no frame porches were found on dwellings and apartments. Height limitations were strictly observed and outside building walls of brick were of much heavier construction than those in the UNITED STATES. In addition all inside room and stairwell partitions were of brick, and no partitions of wood lath and plaster on wood studding were noted.

b. To circumvent the spread of fires from basements, buildings more recently built were required to have incombustible first floors, generally of reinforced concrete or of arched brick on steel beams. Many buildings, particularly the more modern large single dwellings and apartments, were constructed with all floors and stairs of fire-resistive materials. This type was known as "massive" construction. All of these buildings had wood joist roof supports or battens, and the ceilings of the top floors were also of wood joist construction providing in all cases highly combustible loft areas. Tile roof coverings predominated throughout GERMANY.

c. The modern business and industrial buildings, many of protected steel frame and panel construction, lacked in some respects the protective and safety features usual to that type of construction in the UNITED STATES. For example, wood sash and ordinary glass were used even on serious exposures. No fire escapes or enclosed and protected stairways were noted. Automatic fire doors, sprinklers and automatic fire alarms were seldom used.

10. Wharves and Docks. In the seaport cities, wharves and docks were built of stone and concrete and the absence of structure supported on wood pilings eliminated the possibilities of disastrous fires spreading through those spaces. Fires of that types have been common in the UNITED STATES. The structures used for storage, loading

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and unloading were mostly of brick with the conventional wood roofs. Large areas were, in most cases, divided by fire walls. Manual fire alarm systems, standpipe lines, and portable extinguishers common to that type of construction and occupancy were found.

11. Common Hazards. The collection of rubbish and garbage by means of standard containers was well arranged in all of the large cities. No alleys were observed with rubbish conditions or frame garage and shed structures, such as are found in many cities in the UNITED STATES. Rubbish conditions were non-existent, because the usual inflammable materials constituting rubbish were scarce and were carefully used. Fires resulting from overheated stoves and heating appliances were also at a minimum because gas, coal and other fuels were expensive, and houses were heated at lower temperatures. Strict building laws required permits for all types of construction, even for changing the location of heating appliances.

### 12. Air-Raid Protection.

a. With cities of the general type and construction described above, it was realized early that, although they were reasonable safe from ordinary spreading fires, they were highly susceptible to incendiary attack. Fire prevention procedures were, therefore, adopted and the regulations sent to all communities throughout the country. Buildings were required to have bags of sand, containers and carriers for water, pike poles, axes, shovels, and stirrup pumps available for use. It was directed that frame supports of roofs be coated with fire retardant paint or other such material. That advice, however, was seldom heeded. Communities were organized into blocks with fire wardens and fire watchers appointed, but it has been stated that in times of attack each person acted individually to protect his own property, or fled to seek shelter until the raid was over. On the whole, the system failed in spite of frequent warnings that disaster would result, unless each block group acted in unison and attacked fires from incendiaries in an intelligent manner and without fear.

b. Industry, however, did better. Fire departments were organized and trained, equipment provided, and, in many cases, fires were handled efficiently without aid from municipal fire departments.

### 13. Conflagration Experiences.

a. German cities were solidly constructed, had many natural fire breaks and contained few conflagration areas as compared to cities of equal size in the UNITED STATES. The humidity is generally high, the weather cool and there are not many dry days nor high winds which are conducive to large spreading fires. Conflagrations occurred, but they were the result of many fires starting simultaneously and, in most instances, of favorable weather conditions.



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b. A record of the conflagrations which occurred in GERMANY brings out some startling facts regarding the ineffectiveness of fire-fighting forces under certain conditions, no matter how carefully their actions were planned and arranged. These conflagrations varied in size, not because of the efficiency of the fire-fighting forces, but, principally, because of the topography of the area and the amount of combustible materials involved.

c. Weather conditions were additional factors in some cases, and contributed materially to the ultimate results. In one instance, the temperature on the days of the fire and for several preceding days had been over 85 degrees Fahrenheit and the humidity unusually low. In another case, the weather was well below freezing, and streets and roads were covered with snow and ice which delayed all the forces, particularly those called from outside the city. Because of the severe weather conditions, several pumping engines froze and were out of service for the duration of the fire and firemen were hampered in the handling of fire streams, apparatus, and equipment.

d. In all cases incendiary and high-explosive bombs were dropped at varying intervals. Windows were shattered for blocks around and civilians sought shelter. Water mains were ruptured, fire alarm communications broken and streets made impassable. The incendiaries ignited many fires which burned without attention. As the fires increased in volume, sparks, flying embers, and finally radiated heat found easy access through shattered window, so that conflagrations were soon in progress, generally reaching their full force in from two to three hours after the raids. Some of these conflagrations reached previously unheard of proportions, and fire officers were confronted with conditions never before experienced by fire departments. It was reported in one instance that the tremendous hurricane of fire caused the air to be drawn toward the fire from all directions with such terrific velocity that it tore trees apart and prevented firemen from coming within range with hose streams. Soon building walls collapsed into streets and further prevented the department from bringing apparatus into the area. In some cases it prevented them from withdrawing equipment which, as a result, was destroyed, and firemen were killed. Because of the terrific heat and showers of embers, existing open spaces such as parks could not be used by the departments to make a stand, and they were eventually forced to discontinue their efforts to extinguish or hold the fires. Such being the case, they diverted their efforts to the rescue of persons trapped in the areas and to extinguishing fires in structures on the edges of the fire area where there was reasonable chance of success. Many persons in basements shelters which showed no evidence of burning lost their lives from lack of oxygen, heat inhalation or asphyxiation. Many also lost their lives attempting to escape from shelters down flame-swept streets.

### 14. Functioning of Fire Departments.

a. In all cases of great conflagrations reported, water mains



were broken and fire alarm systems were destroyed. The fire departments, being without radio, resorted to messenger service. The chief officers found it an exceedingly difficult operation to assign fire-fighting units with any degree of dispatch and efficiency. Those in command had difficulty in receiving reliable information at their control points, and it was considerable time before they could organize their forces in vital positions. In all cases, conditions bordering on chaos and complete disorganization resulted. The more efficient officers often recovered their equilibrium, however, and, in some instances, devised ingenious plans to secure some semblance of order. In most cases, being cognizant of the theory of demolishing buildings with explosives to make fire breaks, and having sufficient high explosives at hand, those in command gave that operation serious consideration. However, the direction of the conflagrations was not definite because of the unusual air currents and radiated heat, so that when they planned such an operation at one point, it would suddenly be discovered that the direction of the fire had changed, and demolition would have created additional damage. Furthermore, the speed with which these fires traveled would not permit time for the work to be done, even had they been able to select suitable locations. They also, as experienced fire officers, understood the theory to be controversial in fire circles, and they are all now firmly convinced that such an operation in times of conflagration is not sound practice.

b. Other difficulties experienced were the multiplicity of command; the long leads of hose necessary from static supplies, and the insufficiency of those supplies both in numbers and capacities; the many delays and interruptions due to burst hose lines; the lack of heavy duty pumpers and heavy steam facilities when pumping in line from inexhaustible supplies; the problem of supplying gasoline, food, and drinking water; the eye and foot injuries which placed many men out of service temporarily; and the many punctured tires due to the condition of the streets.

15. Functioning of Auxiliaries. Forces from other places were generally grouped at the outskirts of the city where they were met by couriers, informed of the situation, and directed to their assignment. Emergency maps were provided showing the sector to which they had been assigned and the nearest available water supply. This plan proved of much value in providing equal distribution and operation of the units arriving at the fire. These units varied from small town volunteer fire companies (Freiwillige Feuerwehren) which had poor equipment, insufficient training and experience, to larger units such as brigades or divisions (Bereitschaften) of the air-raid-protection police from cities which were well trained, well equipped, and efficient. Such mobile reserve units as the air-raid-protection battalions of the air force and the fire-protection-police battalions were well equipped and trained for fire fighting and rescue work, and were, in general, efficient.



## IX. EMERGENCY MEDICAL SERVICES

1. Introduction. Next to fire protection the emergency medical service was considered the most important division of the air-raid-protection service. Emphasis was placed on the fact that the service had to be organized, equipped and trained before war started. That was done, and the completeness and excellence of the service were publicized for their effect on the morale of both civilians and military. The soldier at the front was assured that every possible protective measure was being taken for his family at home because of the experience gained in the first world war when worry about home conditions had had a demoralizing influence on the troops. Plans were made for both first aid and definitive medical care of air-raid casualties in the local communities, and for the evacuation of sick and wounded from the over-taxed and threatened areas. This report discusses the emergency medical service, the German Red Cross, the mortuary service, the emergency medical service in industry, and in the German National Railroad and National Post Office (communications) systems.

### Emergency Medical Service

2. Organization. The local leader of the emergency medical service, a physician, was appointed by the police president, and was responsible to him. His duties were to organize the service, select and train the personnel, and direct their activities. He was also responsible for the integration of his organization with those of the other air-raid protection services. With the approval of the police president, he selected the location and directed the establishment of all emergency medical facilities. The following chart (see page 56) indicates the organization plan.

### 3. Description of Organizational Units.

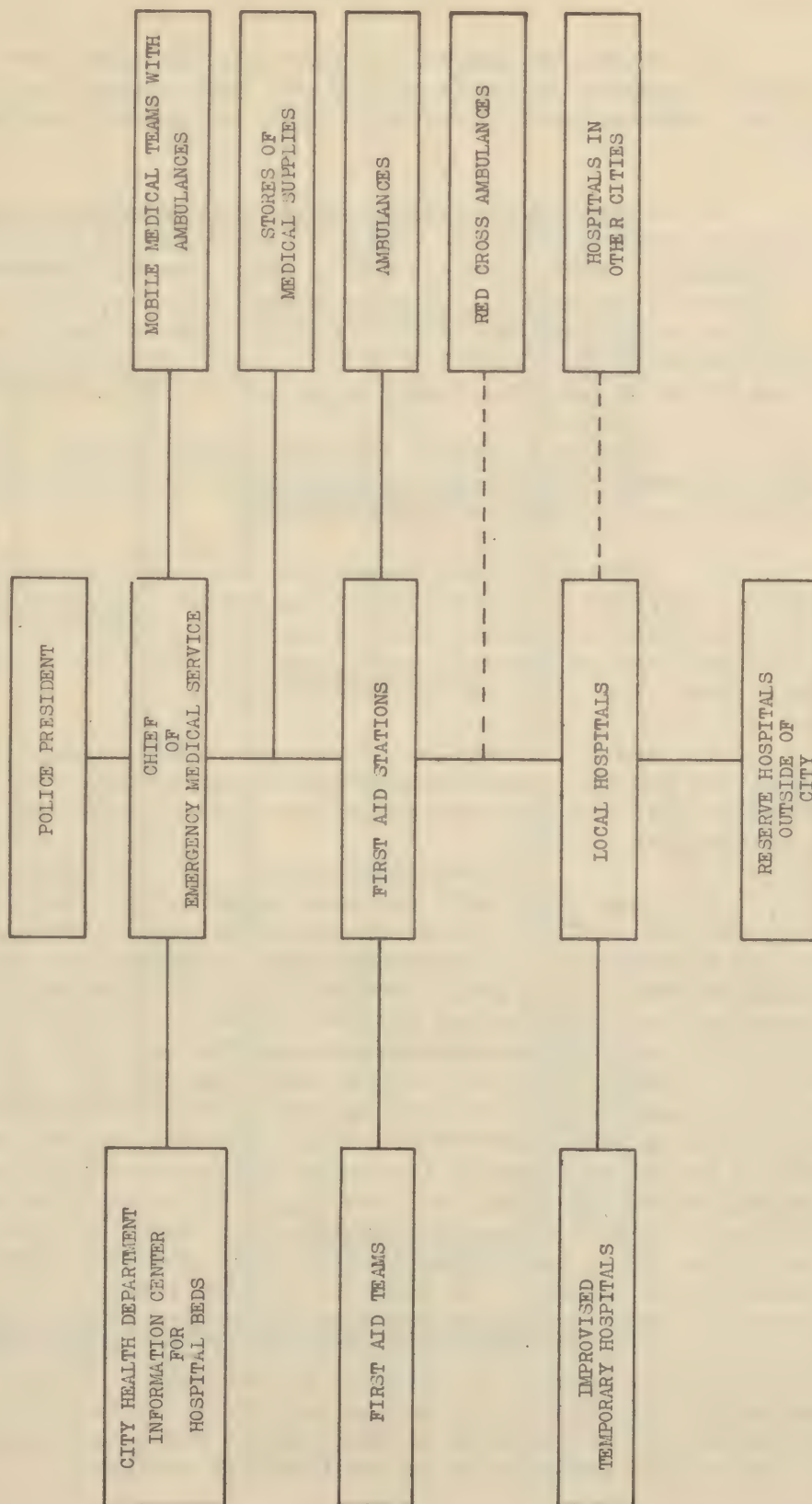
a. The chief of emergency medical service was under the direct authority of the police president and in complete charge of all phases of organization and operation.

b. The information center for hospitals and the availability of hospital beds was directed by a physician from the local health department. It was his responsibility to keep a continuous record of available hospital beds within the community and to assist the chief in the distribution of casualties among the hospitals. He also assisted hospital directors in their organization and protection plans and in the problems of the evacuation of patients.

c. Mobile medical teams (Sanitätsbereitschaften), forming part of the air-raid-protection police, were deployed within the larger cities in areas containing several first-aid stations. These teams were divided into two or three platoons (Züge). Each platoon had three medical groups (Gruppe), led by a physician with eight men trained in first

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION OF THE EMERGENCY MEDICAL SERVICE.





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aid and an ambulance with driver. Each mobile medical team had an ambulance squad with six to nine ambulances.

d. Stores of medical supplies and equipment were scattered in depots throughout the city to minimize their loss from bombing. Additional reserve supplies were obtained as needed from army supply depots.

e. A first-aid station was usually located in each city police precinct which ordinarily contained a population of from 30,000 to 40,000 persons. These stations had to meet certain construction and other minimum standards that were prescribed at the national level. The diagram on page 58 indicates the prescribed first-aid station. The first-aid station was staffed with from one to three or four physicians and from 12 to 20 male and female assistants trained in first-aid.

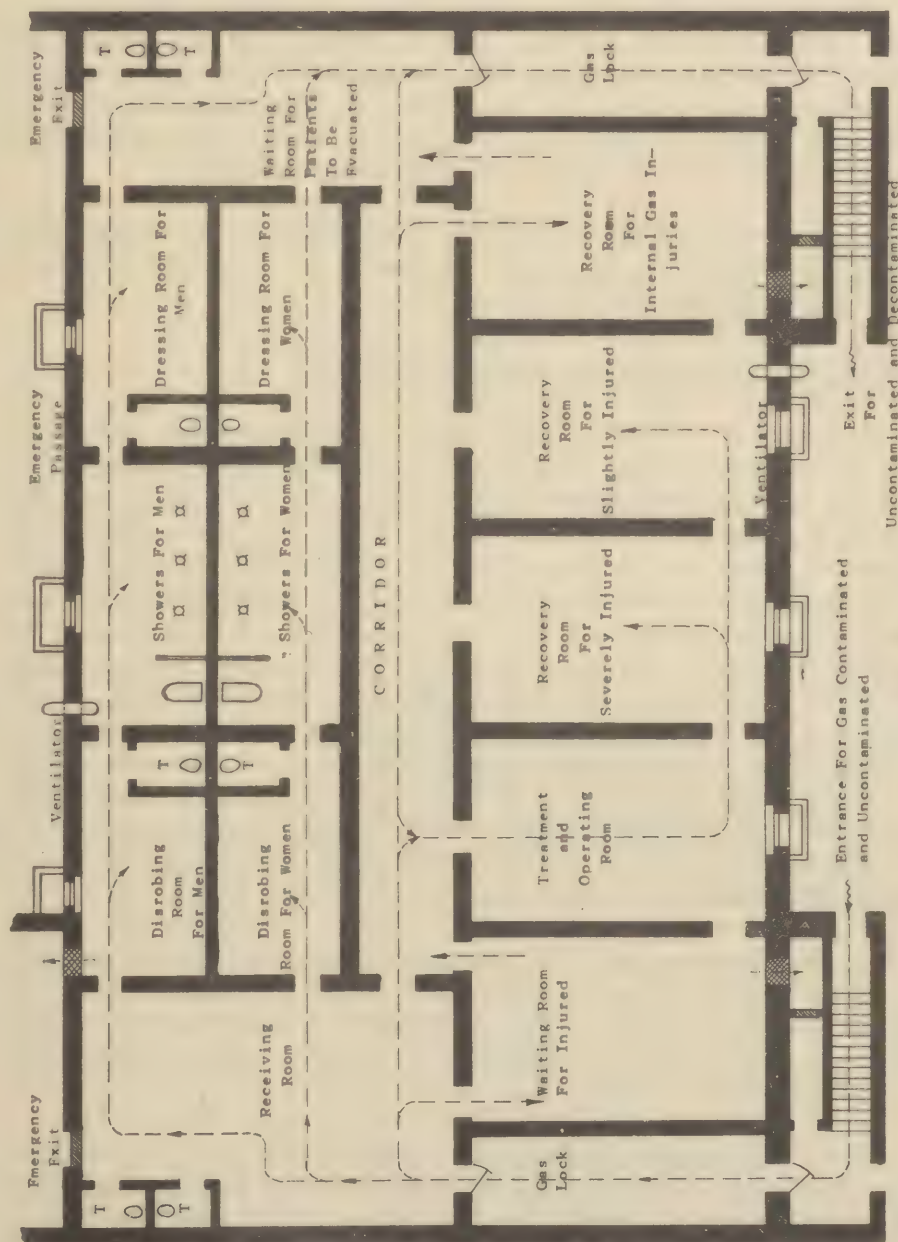
f. First-aid parties (Rettungsstellengruppen) consisted of a leader, a driver and eight men trained in first-aid, and had an ambulance and first-aid supplies and equipment.

g. Ambulances were moved from the larger posts and distributed among the first-aid stations in order to afford them better protection from bombing and to simplify their dispatch and operations. The average ambulance was equipped to carry four stretcher cases, but some could carry as many as 18, and, in a few cases, up to 25.

h. Red Cross ambulances were under the direction of that organization and the number maintained varied considerably in the respective cities. In many instances they made an important contribution to the ambulance service.

i. Local hospitals remained under the control of their directors and medical staffs. Protective measures within the hospitals were under the direction of a leader appointed by the police president, and were independent of the local emergency medical service. The chief of the emergency medical service assisted, however, in the teaching and training of hospital personnel in the handling and care of air-raid casualties. The provision of sufficient hospital beds was the most difficult single problem in handling casualties. The capacity of many hospitals was greatly reduced by actual destruction from bombs, and other hospitals had to be temporarily evacuated because of failure of utilities. The safety rules requiring the vacating of the upper floors of hospitals, together with the rule that a hospital could admit only the number of patients that could be accommodated in their shelters, reduced hospital bed space still further. In order to provide protection for hospital patients, at least two large shelters for hospitals were built, one in BERLIN and one in BRUNSWICK. In other cities space was allotted in shelters for the housing of sections of hospitals. The ruling that all operating and delivery rooms had to be bomb proof resulted in the building of some special shelters to house these services; in other instances, they were placed underground in the hospital shelters.

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY



FLOOR PLAN  
Typical German First-Aid Station

Most of the Stations were equipped with Diesel engines which powered electric generators to operate ventilating systems and usually water pumps. There was always a gas filter in the air intake. Stations were usually built in basements of schools or other well constructed buildings. The ceilings were reinforced with from eight (8) to twelve (12) inches of concrete which would protect against incendiary but not high explosive bombs. Many of the recovery rooms were enlarged to accommodate from twenty-four (24) to forty (40) bed patients.



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j. Improvised temporary hospitals were set up in schools and suitable nearby buildings in an attempt to increase or replace bed space lost through air-raid damage.

k. Reserve hospitals were constructed outside the cities by the national government to replace local hospital facilities no longer available. They were satisfactory wooden barrack-type buildings, were well equipped, and were ordinarily attached to one of the local city hospitals for administration and staffing. Patients were evacuated to them because of their relative safety, and to make room in local hospitals for new air-raid casualties. Another example of the under-estimate of the anticipated amount of bombing is shown in the fact that the need of building reserve hospitals was not recognized until late 1942 when an inadequate number was built in northern and western GERMANY.

l. Patients were often evacuated to hospitals in other cities, some of them at a great distance, i.e., patients injured in HAMBURG were sent as far away as DRESDEN (about 250 miles).

### 4. Emergency Medical Service Operations.

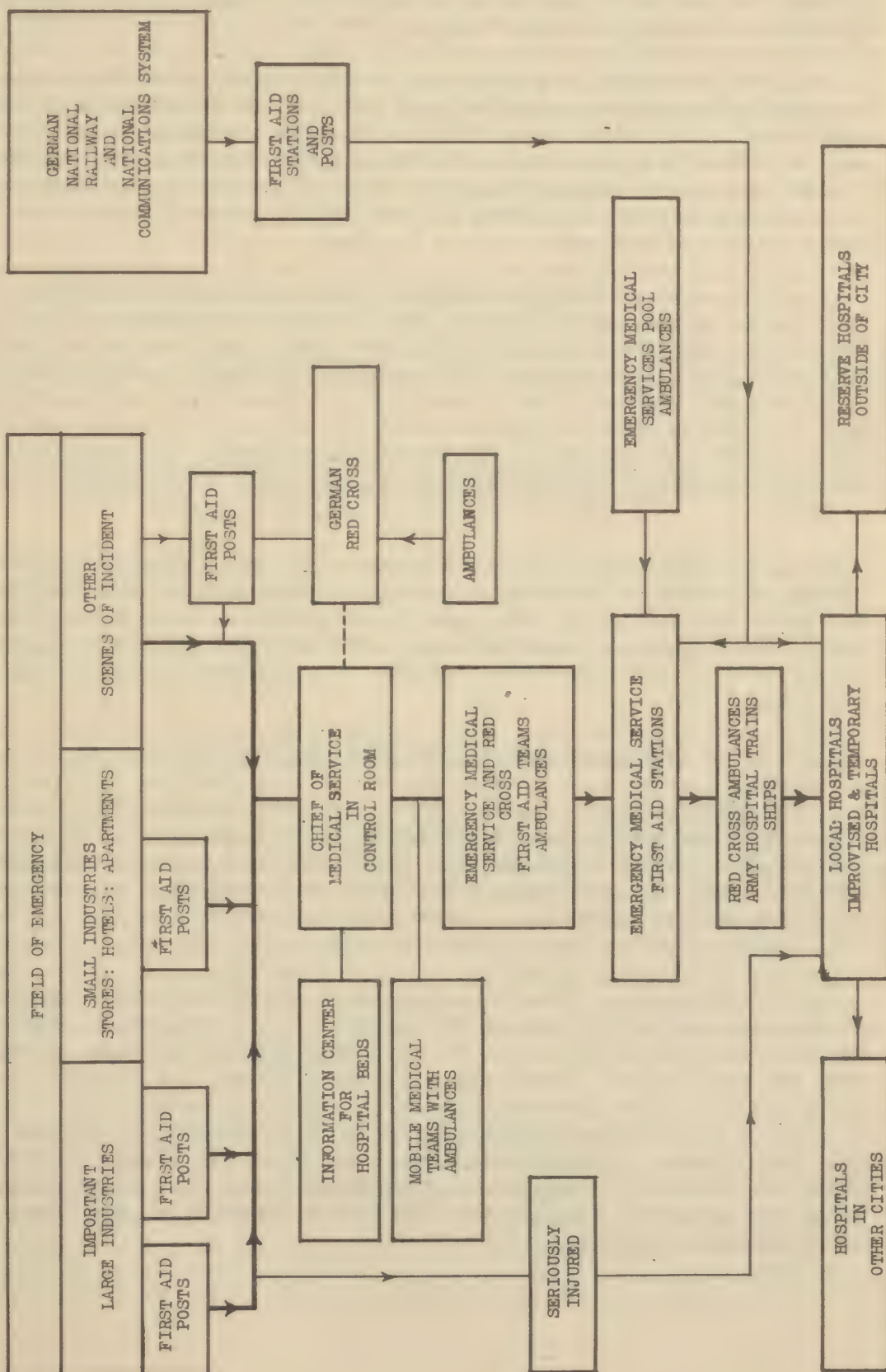
a. The chief of the emergency medical service was the key individual in the operation of all elements in the service. However, in severe raids which interrupted communications, isolated units often operated successfully without direction. Except during the saturation raids, the first-aid services were satisfactory and the injured received attention within a few hours. In the heavy raids, many of the stations operated continuously for as long as three or four days. With the destruction of doctors' offices, much of the general medical care of civilians was done at the first-aid stations. Special ones were set up for the medical care of the police, not including their families, and for the examination of claimants for benefits for injuries received in air raids. A serious effort was made to keep accurate records of all injuries at the first-aid stations, in order to process later claims for benefits. The chart on page 60 indicates the general plan of operation of the emergency medical service.

b. On the sounding of the general alarm, the chief proceeded immediately to the control room and the rest of the staff joined the skeleton crews at the first-aid stations. Certain sections of hospital staffs assembled at this time but the mobile medical teams assembled only in the event of severe raid.

c. At the beginning of the war, the first-aid parties were sent out during the raid. This was soon found to be impractical and later they were instructed to wait for the "Pre-All-Clear" signal. It was reported that some of the Red Cross first-aid parties continued to operate during raids.

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

OPERATIONS CHART OF THE GERMAN EMERGENCY MEDICAL SERVICE





d. Only the simplest first-aid treatments were given at the site of the incident. Some cases with minor injuries were treated and sent home, while serious cases were given only such aid as would permit their safe transportation to a first-aid station or to a hospital. As the load increased, the practice of routing all injured through the first-aid stations was abandoned and many of the seriously injured were sent directly to a hospital. The hospital was supposed to make the necessary record and return it to the appropriate first-aid station. If there were more injured than the first-aid parties from the local first-aid station could attend to, the mobile medical teams with their directing physicians were sent to the area.

e. All patients arriving at the first-aid stations were examined by the physician in charge, who directed their disposition. Those with minor injuries were treated in the operating room and either sent home or kept for observation. The severely injured received additional first aid and were sent on to hospitals, if beds were available. If not, they received as much definitive treatment as was available, and were hospitalized temporarily in the first-aid station. Since there were no gas casualties, the space allotted for them was often used for additional beds.

f. The hospitals evacuated as many patients as the reserve or temporary hospitals could accommodate. Patients were discharged much earlier than would have been done in ordinary times in order to release beds. The hospitals cooperated well with the bed registry office, and the doctors at the first-aid stations were informed where to send their patients.

#### Emergency Medical Service in Industry

5. Introduction. First-aid and medical services for the care of air-raid casualties were a coordinated part of the partially independent air-raid-protection services that were established in all important industries, and were patterned after the local emergency medical services organized in the community. These services were centralized in the first-aid station of the principal shelter constructed for plant employees.

6. Facilities. The completeness of the medical services depended on the size and importance of the industry. In the larger plants it practically duplicated the local emergency medical service in organization and facilities. First-aid stations followed the general pattern as indicated in the diagram on page 58. These stations were staffed by part or full-time physicians as well as by nurses, first-aid personnel and helpers. In the smaller plants nurses and first-aid-trained personnel operated first-aid posts. Some of the plants maintained their own ambulance service and the others depended on the local emergency medical service for ambulances.

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7. Organization and Training. If a plant employed a physician, he assumed full responsibility for organizing and training his staff. He often called on the Red Cross to assist in teaching first aid and in providing nurse's aides. Where a physician was not employed or available, the leader of the factory air-raid-protection service requested aid of the Red Cross in training specially selected personnel who consisted of nurses, first-aid workers and helpers. Each plant appeared to have a satisfactory number of workers trained in first aid. In the larger plants they were organized into reserve and mobile first-aid teams, in support of the first-aid teams stationed about the plant.

8. Operations. It was the duty of the medical service to render first aid and to arrange for the transportation of the more seriously injured to local hospitals. In the absence of a physician, casualties were given only immediate and necessary first-aid attention and then routed to one of the first-aid stations of the local emergency medical service.

Emergency Medical Services of the German National  
Railroad (Reichsbahn) and the National Post Office  
(Communications) Systems (Reichpost).

9. Introduction. The National Railroad and Post Office (communications) services had an emergency medical division in their entirely independent air-raid-protection services. They were well organized to provide emergency care for their own casualties, including their transportation to local hospitals.

10. Facilities and Organization. They had their own first-aid posts and stations, and, in addition, the railroads had first-aid cars. Their regularly employed physicians organized, and were responsible for, the training of the medical and the first-aid personnel, assisted by the Red Cross. They were familiar with the location of the local first-aid stations and hospitals, and plans had been agreed upon to transfer their casualties directly to them when necessary. These public utility systems were authorized to secure the use of additional vehicles from private individuals and firms, and to prepare them to carry patients in order to augment their own supply of ambulances which were available to the local chief of emergency medical service in case of need. Except for hospital facilities, the utilities' emergency medical services were found to be complete and adequate.

11. Comments. The training program of the Red Cross in supplying nurse's aides and first-aid personnel and helpers was one of the most important preparations for the war. The establishment of an apparently sufficient number of first-aid stations was the backbone of the operations of the emergency medical service. The destruction of hospitals and the large number of injured presented an almost insurmountable problem which could have been met only by the earlier construction of more reserve and shelter hospitals. The satisfactory organization of



the factory air-raid-protection service for the care of casualties is worthy of note. The relatively small number of doctors was used to good advantage, and there was very little shortage of ordinary medical supplies. The fact that they did not have blood plasma or penicillin and had only limited amounts of supha drugs, insulin and glucose made the results of their medical care inferior to American standards.

### Red Cross

12. Introduction. Previous to 1933, the German Red Cross, which was chartered under the Geneva Convention, operated as a private agency. The organization was "nationalized" in 1933, and then, in December of 1937, it became a Party organization, complete control being vested in a strong Nazi leader who was appointed by Hitler. The collection and administration of funds came under control of the Party and all activities were pointed toward the part which the Red Cross was allotted to take in the preparation for war.

13. Organization. The organization pattern of the Red Cross and the principal activities carried on by it were similar to those of the American Red Cross, the sole difference being that control was vested entirely in the government and all programs and activities were directed by it.

### 14. Principal Red Cross Services.

a. First-Aid Instruction. The instruction of lay people in first-aid techniques was a normal peace-time activity of the Red Cross. As early as 1933, however, together with other preparations for war, a new impetus was given to the program. Further emphasis was placed on it by the national decree of 24 December 1937, which directed the Red Cross to provide trained first-aid personnel, both male and female, for duty with the air-raid-protection services. This order was carried out and trained workers were turned out in large numbers. The instructors for the most part were volunteers and comprised physicians, nurses and, in many cases, specially trained lay first-aid instructors. On completion of the course which covered 24 hours of instruction, demonstration, practice, and final qualification by examination, Red Cross workers were made available to the air-raid-protection police for assignment and direction.

b. Nurse's Aides. Probably the second most important service rendered by the Red Cross was the recruitment and training of nurse's aides. This program was developed in the early stages of the war and was carried on continuously to the very end. Recruitment of candidates presented no difficulties and the training was carried on by qualified instructors. The candidates were required to complete satisfactorily the standard 24 hour course in first aid, after which those eligible were enrolled in the nurse's aide course, consisting of two weeks of daily lectures and demonstrations. Following that course, the successful candidates were given three month's practical experience in hospitals.

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Those failing the complete course were often used as "helpers" in various posts in the emergency medical service. Both men and women were eligible for enrollment and many of both sexes were graduated and assigned to work in army hospitals on a paid basis. Although the trainees were purely volunteers during the course of their training, the majority of the graduates became full-time paid workers.

c. Nurse Recruitment and Training. Red Cross activity in the recruitment of nurses for war and civilian service varied considerably throughout the country. The same was true regarding the training of nurses. In some areas both activities were carried on rather energetically but that was usually in those cities where graduate-nurse training programs had been carried on in peace time.

d. Ambulance Service. Before the outbreak of war the Red Cross maintained and operated ambulances as a peace-time community service. Concurrent with other preparations, additional ambulances were procured for use in civilian air-raid-protection services. Up to late 1943, ambulance services were maintained by the Red Cross for civilians, the medical service of the air-raid-protection police, some hospitals and some industries. In November of 1943, all ambulance services, by national decree, were ordered to be turned over to the control of the Red Cross. This order was complied with only in part, some cities continuing the original plan. The number of ambulances in most cities was probably adequate in the early stages of the war, but, as the raids increased in intensity, the destruction of many which could not be replaced became a serious problem. After some of the heavier raids, it became necessary to call for ambulances from the army and from nearby cities, both for the local transportation of casualties and for the evacuation of patients to temporary and reserve hospitals. Most ambulances were operated by the Red Cross and were equipped to carry four stretcher cases, although a few could carry as many as 18. An important lesson learned by the Germans in the early heavy raids was the necessity for wide dispersement of their ambulances, which increased somewhat the problem of control and dispatch, but did reduce the likelihood of destruction.

e. First-aid Services and Operations. In some communities, the Red Cross organized, equipped and operated first-aid posts which were in addition to the first-aid stations maintained by the air-raid-protection police. They were ordinarily staffed by a few paid nurses, nurse's aides, and first-aid personnel and volunteers. Occasionally only volunteers were on the staff. A physician was assigned to assist in several, six to eight, of these posts during the course of and following raids. These posts were also established in many of the larger shelters. They provided an important service in the first-aid treatment of injuries during the heavier raids when communications broke down and regular emergency medical services were not available.

f. Mobile Red Cross Columns. In some areas "mobile Red Cross



columns" were organized to move into stricken communities to render assistance. These "mobile columns" were made up of several trucks carrying portable metal sheds to serve as temporary shelters. Included also were X-ray apparatus, operating facilities, field kitchen, cots and other equipment. An ambulance section of variable size was attached to the column. The staff consisted of physicians, nurses, nurse aides, first-aid personnel and drivers. It was reported that these mobile forces provided excellent service on many occasions.

15. Comments. The Red Cross operated only partly under the control and direction of the chief of the medical service of the local air-raid-protection police. As in the UNITED STATES there was some conflict and duplication of services between the Red Cross and the medical service, which were never entirely eliminated even after "nationalization" of the former. Its principal functions were concerned with the providing of first-aid personnel, nurse's aides, ambulance service, and some first-aid supplies and equipment.

### Mortuary Service

16. Introduction. The care of the bodies of persons killed in air raids was the duty of the civil administration of the local government. The practices of peace time were followed rather closely in smaller communities. In the larger cities, modifications were made which were usually published as special regulations by the police president. Special organizations for the mortuary services were often established by the office of strategic employment. The personnel was selected from other municipal services, often the park department, or public utilities, or the rescue service of the air-raid-protection police. All burial expenses were borne by the city. The national government was supposed to reimburse the city, but in no instance was this found to have been done. Most of the burials, as in peace time, were in the city cemeteries. At the request of the relatives, the body could be claimed by them and they would arrange for burial in private cemeteries, in which event they had to assume the burial expenses. During the war, space in private cemeteries was often used by the city.

17. Organization. Some person in the municipal government was made responsible for organizing the mortuary service. In the smaller places it was often the superintendent of cemeteries. In larger cities it was usually someone from the department of buildings. The task of recovering and transporting the bodies was assigned to one of the municipal departments. The identification of the bodies was a function of the criminal police. The certification of death was made by a district or local air-raid-protection physician. The last was important in order to establish claims for death benefits and to discover the presence of crime. Nazi Party and municipal officials and the clergy usually joined in conducting individual or group funeral services

18. Collection of Bodies. This operation often proved to be the most difficult task of all. In large raids, even exposed bodies were not all collected for as long as six to ten days, and, in some instances, not for two weeks. Some of the bodies buried beneath rubble and in destroyed shelters had not been recovered two months after the war ended. Bodies near unexploded bombs were allowed to remain for seven days. Fragments of bodies were assembled and identified as well as possible, often taking into account the available information regarding the number of persons missing from the area. Trucks, vans, tractors, wagons, and boats were used to transport the bodies. The leader of the service sometimes requested aid from the other units of the air-raid-protection police and from the mortuary services of other cities.

19. Storage and Care of Bodies. Large rooms were selected in advance and priority was established for their use. The space often proved insufficient and emergency morgues had to be established. Under the direction of the local undertakers, the bodies were cleaned and laid out so as to appear well cared for in the event relatives had to be called in to help with the identification. Otherwise, no one but the assigned workers, doctors, police, and Party officials were allowed in the morgues. Bodies were rarely embalmed.

20. Cemeteries. The city cemeteries operated under the direction of the regular superintendent who often directed and coordinated in a casual way the activities of the private (church) cemeteries.

21. Burials. In so far as was possible, bodies were put in coffins, made, in some instances, of papier-mache. An effort was made to bury bodies in single graves. The next expediency was to use long trenches and assign space to each body. When that plan would not suffice, mass burials were made in pits dug by steam shovels. Chloride of lime was used to cover partially decomposed bodies and to clean the vehicles carrying them. Rubberized clothing and gas masks were used by the workers handling the bodies.

22. Operations. The presence of bodies was reported by the air-raid warden to the commander in the control station, who issued the orders for their collection. When there were only a few, the identification and certificate of death were made at the site of the incident. The bodies were then carried directly to the cemetery morgues and the families notified. If there were many bodies, they were carried to the collecting rooms. There was a carefully planned system of marking the bodies after they had been identified. Numbered metal tags were often attached to the corpses in addition to their being marked with caustic pencils. Multiple records of name, address, date of birth and other pertinent information were required. Signatures for release and the acceptance of bodies were made by the different persons handling them. The families were notified when the plans for burial had been made. After the heavy air raids, all of these plans failed more or less. In some instances, as many as 30 per cent of the bodies was not identified. In



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one small city there is only a list of names of the known dead and missing persons to form the record for the burials made in a mass grave.

23. Comment. It seems that the difficulties encountered in the mortuary services were more completely underestimated than in any of the other air-raid-protection services, with the possible exception of the fire-fighting service.

## X. RESCUE

1. Origin of the Rescue Service. The rescue service in GERMANY began to take shape in 1932. The formation of the service did not present any difficulties as it was based almost entirely on an existing organization, the technical emergency service (Technische Nothilfe). For complete discussion of this organization, see Section XI, paragraph 11.

2. General Organization. In the larger towns, the rescue service was one of the functions of the repair service (Instandsetzungsdienst), one of the services of the air-raid-protection police. It was organized into companies (Bereitschaften), each company being divided into two or more sections (Züge) and each section being further sub-divided into two or three groups (Gruppen). The strength of each group was one leader and seven or eight men. In smaller towns, the service was provided by the technical emergency service and was not organized into companies, the highest operational unit being the section. One man would be chosen as the leader of the service, usually a master-builder in the town. During active operations, he controlled the entire service from the control room (Befehlsstelle), and acted as advisor to the air-raid-protection leader. The several companies or sections were distributed about the town in geographically convenient places, the headquarters of each sub-unit being in touch with the central control room. At the beginning, these units covered most of the town but, toward the end of the war, their location was governed by the amount of destruction in the community, so that often they had to be concentrated in the least damaged area.

3. Personnel. In July, 1944, the table of organization for the rescue service was revised. The total strength of a unit of four sections (Züge) was 99, made up of one unit leader, four section leaders and 94 non-commissioned officers and privates, including clerks, drivers, messengers and workshop personnel. Some flexibility was permitted and towns could be a little below the authorized strength. In general, it may be said that the number of men employed in the German rescue service in any given community was less than in a town of corresponding size in GREAT BRITAIN. In GERMANY, however, there was always available a large local reserve of the men in the technical emergency service. It is quite certain that difficulties were experienced in keeping the strength up to operational requirements, owing to demands by the army and the air force for manpower; and where the numbers were maintained, the average age was continuously increasing. Unquestionably, rescue work was adversely affected by those factors. The building industry was able to make good the numbers up to a point, but fully trained rescue men with great experience were being replaced by semi-skilled labor long before the end of the war. In one town a complete section was formed of Russian prisoners of war from the UKRAINE but they were never used as a unit and, once trained, they were split up and sent as reinforcements to other sections of the town.



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4. Equipment. Originally all equipment was supplied to the rescue service through the air force. It included all of the small tools, such as crowbars, picks, shovels, saws, spades, hammers, oxy-acetylene cutting equipment, ropes and wire cables, lighting units complete with generators, shear legs, derricks and pulleys, electric drills and chest-high rubber boots for working in water. In addition, there were electrical detonators for demolition work. Heavy equipment, such as cranes and bulldozers, was not a general issue, and arrangements were usually made in advance to borrow such equipment from contractors in the town. Transportation to carry the men and their equipment was supplied to the service at the rate of two vehicles for each group. The service remained mobile, although the quality of replacement vehicles deteriorated greatly as the war progressed. There was no evidence that at any time, or place, was there any shortage of equipment. In fact a great deal of small equipment remained on hand, in new condition, at the end of the war. Every town of any importance had a set of listening equipment used to help in the location of casualties. For further information, see paragraph 7 of this section, "Location of Casualties".

5. Operational Control and Procedure. The normal method of calling the rescue service into action was as follows: the house warden in whose area the damage had occurred would report direct to the control room of the local police precinct. The message would be telephoned, if possible, or sent by messenger, or the house warden would take it himself. He could pass the message to his own block warden for forwarding, when that was more convenient. Frequently the police precinct control room would have two or three groups or a whole section of the rescue service available for dispatch on orders of higher control centers. When that was the case, the necessary services would be ordered out at once and report made to the main control center stating what had happened and what action had been taken. On receiving instructions, the section leader (Zugführer) or the group leader (Gruppenführer) would go immediately to the site, in advance of his own men. Having arrived there, he would make reconnaissance and, if additional units were required, he would send a message down to the local control room stating what was needed. The message would go through to central control which would obtain the needed reinforcements from other sectors of the town, or, if necessary, from outside. There was a difference of opinion in GERMANY as to whether rescue services should be sent to incidents during saturation raid conditions, or whether they should be held back until the raid had ceased and then sent out in full strength. Raids on GERMANY were frequently over in 30 to 60 minutes and some towns, once heavy raiding started, refused to send their rescue services out until after the "Pre-All-Clear" signal. In other towns, the services were dispatched at once, if it was definitely known that casualties had been incurred. In GREAT BRITAIN this problem did not arise to any great extent, as during the blitz, raids lasted for several hours and there could be no question of withholding the services. Where there was a fire problem of great intensity over a large area, it was probably useless to send the parties too close to the area, as they were liable to get caught in a fire



wind storm, or to be prevented by the heat from making any effective approach into the burying area. There is probably no answer as to what is the best procedure under such conditions. No town can, under any circumstances, make preparations to deal with a series of saturation raids. The best results under such circumstances can be achieved by the local leaders on the spot who tackle with energy and initiative the problems immediately confronting them.

6. Terminating an Incident. There was no standardized system of terminating an incident in GERMANY, and ceasing further rescue work. The procedure adopted differed from one town to another. Everywhere the importance of the matter seemed to have been realized. In some places the head of the rescue service conferred with the rescue party leader on the spot. They obtained information regarding possible casualties, and, if both agreed that there were no more casualties under the debris, the parties were called off and work ceased. In another town the commander of the police in the precinct concerned would be called into the discussion. No case was discovered where the head of the air-raid-protection services, usually the police president, was consulted in the matter at all. There is no doubt that, under the scale of attack on GERMANY from 1943 to 1945, it was impossible to follow any pre-arranged rigid plan. It was admitted in HAMBURG that approximately 1,000 persons were still under the debris, and that rescue work had continued on a smaller scale in some cases for 14 days and that persons had been rescued alive after 78 hours. It would seem that rescue work was generally carried on as long as there was any chance of anyone remaining alive. In some cases it was necessary for the rescue squads to work in rubber gloves and decontamination clothing. Special arrangements had to be made to protect them from fly bites and to disinfect them completely at the end of a tour of duty. In such circumstances it is possible to understand the rescue parties being called off when the visible bodies had been rescued, particularly if there was no intention to open up the damaged area in the near future. In one town some 150 bodies remained under the debris about six weeks after the bombing had taken place. No effort was being made to carry on the search for them and, when an inquiry was made regarding the reason for the delay, the reply was that it was a question of manpower. Every available man had been put on the work of re-establishing the water supply for those still alive in the town, since that work was considered of primary importance, once the living casualties and the exposed dead had been removed.

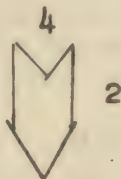
7. Location of Casualties. In GERMANY a special study had been made of the difficult problem of locating casualties, which constituted one of the most difficult tasks of the rescue party leader at the scene of the incident. Good information might save hours of rescue work. Two methods of marking shelters are described below:

a. In many towns, the letters L.S.R., standing for "Luftschutzraum" (air-raid-protection room) were painted on the outside walls. An



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arrow was added indicating the direction of the shelter. More complete information was given by a method of indicating the exact location of the shelter room as follows: an arrow painted on building facades, thus;



It was always in a vertical position pointing to the ground and was from one to three yards long, with a stroke from two to five inches wide. The numerals represented distances in meters. The number "2" on the right side of the arrow indicated that the shelter was two meters to the right of the arrow; the numeral "4" at the base of the arrow indicated that a distance of four meters inwards from a point two meters to the right of the arrow, the shelter would be found. The numerals on the arrow would be varied according to distances, the zero always being put at the base of the arrow when the shelter was immediately behind the wall at the indicated distance from the arrow. The zero was inserted to avoid any possibility of the measurement having been forgotten.

b. Another system had arrows inclined to the right or left at about a 30 degree angle from the vertical with point down, indicating a shelter near the street. Pointed vertically upward, it indicated a shelter at the rear of the building. Large arabic figures at either the point or the feathered tail of the arrow indicated distances in meters below street level; figures alongside of the shaft gave distances horizontally in from the sidewalk.

c. Listening apparatus for the location of conscious buried casualties was supplied to all large towns. No direct evidence of the successful use of the apparatus has been forthcoming. The almost insuperable difficulty of obtaining the requisite silence at the scene prevented the recognition of any signals that might have been given by the casualty. This silence was quite impossible, if there was a fire burning near the scene. There is no evidence that dogs were ever used in any part of GERMANY for the location of casualties.

### 8. Rescue Technique.

a. Tunnelling through debris and making proper use of voids in collapsed buildings for the purpose of reaching trapped casualties do not appear to have been practiced in GERMANY to anything like the extent that they were in GREAT BRITAIN. HAMBURG is an exception to that general statement. There the head of the rescue service and of the technical emergency service had advanced ideas on the technique of

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rescue work. The principle of tunnelling to avoid the danger of approaching the casualty from the top of the debris pile was understood but whatever tunnelling was actually done was of an elementary nature. Some towns had arrangements with local miners to come and assist when required, but no evidence of their having been actually used was available.

b. Debris Clearance. The debris removal method of getting at a casualty was used a great deal, and, speaking generally, the dangers inherent in this method of rescue were understood. Care was undoubtedly taken to avoid, as far as possible, further collapse before the removal of the casualty. Difficulties were experienced in this matter when the army came into a town as reinforcements in large numbers. It was planned that they should be organized into squads with trained rescue men as guides, but that could not always be done.

c. Marking of Damaged Houses. In HAMBURG a system of marking damaged houses was devised to indicate that they had been searched for casualties or bodies, or that the gas, water, and electricity had been cut off, or that the remains of the building could be demolished, or that water was obtainable for fire extinguishing. These markings saved a great deal of time and prevented duplication of work by parties coming up as reinforcements to large-scale attack areas. The marks were as follows:



- (1) On the wall of a house a circular blob painted green about eight inches in diameter indicated that the house had been searched and that no casualties or bodies remained.

- (2) A vertical line painted yellow indicated that the gas, water and electricity had all been turned off.

yellow

- (3) A cross painted black indicated that the city building office had inspected ruins of the building and agreed that it must be demolished, provided that compensation was first agreed upon with the compensation authorities (Feststellungsbehörde).





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- (4) A wavy vertical line painted yellow indicated that water was available in the house for the extinguishing of fires.

wavy  
yellow

## XI. MOBILE RESERVES

1. It was apparent to the German high command and Party leaders early in the war that the air-raid-protection forces of their industrial cities and principal target areas could not cope with the damage and destruction caused by air raids of ever-increasing weight and intensity. Their attention was thus directed to a plan for providing mobile reserve organizations for fire fighting, rescue work, debris clearance, demolition, food relief, and repair of utility services. They were forced from time to time, to recast the character and equipment of these organizations in an effort to lessen the effect of aerial attack and to maintain production of vital war materials as the growing strength of Allied air power reduced the defense capabilities of the German air force.

2. The characteristic of creative genius, so typical of Germans, caused the formation of many overlapping civilian defense units, with dual purposes and services. While this condition prevailed early in the war with the static air-raid-protection units, it was also manifested in the planning of mobile reserve assistance. As experience was gained by the bombing of their larger cities, the Germans were forced to consolidate their protective forces in view of available manpower and diminishing supplies, as the description of the following mobile reserve organizations endeavours to reflect.

### 3. Air-Raid-Protection Battalions of German Air Force (Motorized) (Luftschutz Abteilungen (Motoriziert) der Luftwaffe).

a. Sources. These motorized battalions of the German air force constituted the largest and best equipped mobile reserve units available to any threatened city or war production plant for fire extinguishing and rescue work. The first battalions were created early in 1940 at the instance of the air force from personnel drawn from the security and assistance service (Sicherheits und Hilfsdienst) and remained under police administration and control. Each community having this service was required to furnish its quota of men. In April of 1942, these units were transferred to the air force and took their present name. Originally, men recruited for these battalions were in the 25 to 40 years of age group, but throughout the war the younger men were drafted into the army or vital industry. Replacements were then drawn from ranks of older men (40 to 60 years), the average age being 52 at the end of the war. These units were accommodated in barracks early in the war, but in the latter months, chiefly in schools and other large buildings.

b. Plan of Organization. Originally, the establishment of 80 such battalions to cover all of GERMANY was recommended by the chief of Department No. 1 of the Inspectorate of the German Air Ministry, who was concerned with the organizational and operational aspects of air-raid protection. His proposal was rejected and only 20 battalions were



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authorized. However, as attacks multiplied, the number of battalions was continually increased, but at every stage there were fewer units than the current scale of attack demanded. That situation was due largely to the inability of the high command to realize the importance and requirements of civilian defense and to its ignoring a basic principle of war that the defense must be planned well ahead of the expected attack, if it is to be successful. There were in operation at the end of the war, 53 motorized fire-fighting battalions of the German air force, organized under eight regimental staffs, one staff to each air force district (Luftgau). The basic operating unit was the battalion, the regimental headquarters being used mainly for administrative purposes. These battalions which were organized as self-contained military units were stationed geographically, generally in small towns, to permit of easy dispatch to two or three important targets over good roads such as the express highway (Reichsautobahn). They were generally earmarked to protect special targets, such as vital factories and certain large cities likely to become targets. Toward the end of the war, when oil stocks were running low, priority use of these battalions was extended to oil refineries and oil storage depots. Their stations were changed from time to time to conform to military necessity and to the location of probable targets.

c. Distribution. When the motorized battalions were taken over by the air force the non-motorized forces of the security and assistance service were left under the local police to become air-raid-protection police (Luftschutzpolizei). This change was brought about by the friction that existed between the air force and the police over control of these forces during operations. It was also decided that the Air Ministry should exercise control of the air force motorized units at the highest level, although in practice they were allocated to the several air force district commands and from that point the air force district commander achieved full control and operated the battalions as mobile reserve columns. All of the battalions were assigned to an air force district, each of which had at least one battalion while several had more. Some units were stationed in occupied countries such as FRANCE and ROMANIA, those in the latter country being especially responsible for fire fighting in the oil fields.

d. Allocation. Requests for the services of these troops went from the local air-raid-protection leader (Ortsluftschutzleiter) through the commander of the regular police to the air force district commander, who disposed of them as he thought best. Since the regimental headquarters and the air force district commands were in close touch with the aircraft reporting and warning service, it was possible to plan the moves of the battalions ahead in the light of the air situation as it developed. Three warnings were issued by regimental headquarters to the battalions. The first warning meant stand by for orders; on the second, they put their vehicles on the road in convoy formation; and on the third warning, they were dispatched to their target. Once inside the working area assigned by the local authorities, the battalion commander was responsible



for his own dispositions. In the event of a heavy attack developing on COLOGNE, for example, the air force district commander would immediately order the reserve battalions to proceed there. The raid would probably be over before they arrived, but the local air-raid-protection chief would have been warned to expect the arrival of the reserves at a given time, traveling by a stated route, and he could thus decide where to assign them. If he still considered the available forces inadequate, the air force district commander could dispatch further reinforcements from other localities. Should an attack develop later, however, on one of the reinforcing towns before its mobile units had returned, then, of course, a serious situation might develop, necessitating a call for reinforcements to the commander of an adjoining air force district, which was accomplished through the Air Fleet headquarters (Luftflotte). To prevent such an occurrence, a careful check was kept on the number of raiding aircraft and, as soon as the attack subsided in any part of the air force district, reinforcements were, if necessary, withdrawn and sent where they might be needed more. The guiding principle of this plan of allocation was not to leave mobile units at a town longer than was absolutely essential, but to withdraw them as soon as fires were under control of local fire-fighting forces.

e. Manning Table and Equipment. Battalion tables of organization and equipment are shown in chart and table on pages 77 and 78.

f. Personnel. These battalions, so organized in 1940 for the old security and assistance service, were officered by the police, and it was extremely difficult to secure competent officers when they came under control of the air force in 1942. The air force called upon the anti-aircraft and ground forces of its service for officer personnel to staff the battalions, only to receive cast-off officers rather than those of experience and ability. The chief of staff of the air-raid-protection staff of the air force stated that unless he could start with suitable material, all the training in the world would not produce a really first-class corps of officers. Toward the end, they had succeeded in commissioning from the ranks the best non-commissioned officers as junior officers, but at no time were they able to secure the class of battalion and company commanders upon whom the efficiency of a unit of this kind ultimately depends. Until the end of the war, the lack of first-class officer personnel constituted the greatest weakness of these mobile forces.

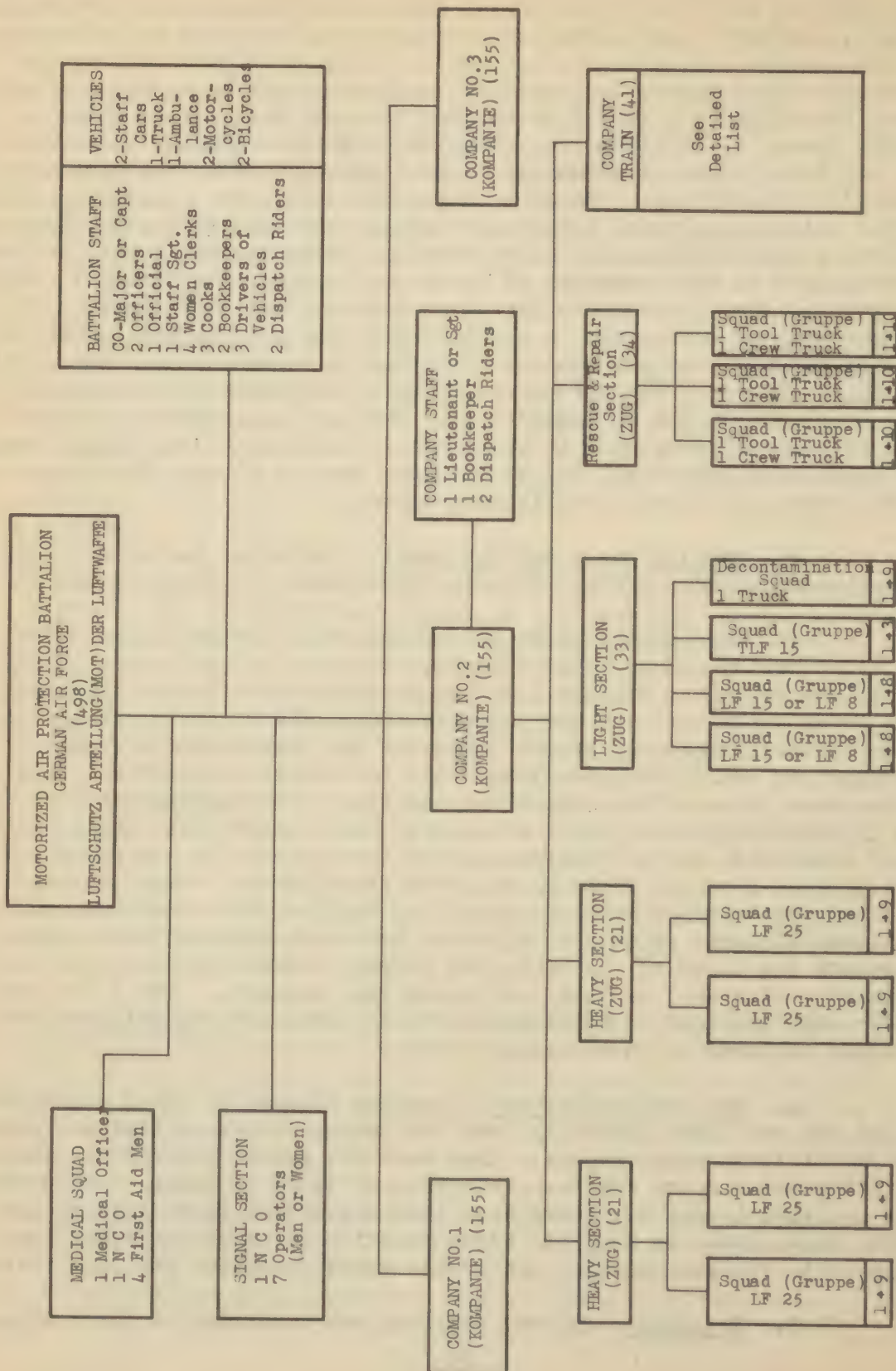
g. Pay and conditions of service for men of these units were as for the air force generally, and the uniform was also similar, except for the distinguishing badges. They were not armed, but carried about 10 rifles per company for the protection of their vehicles. The units were equipped by the air force with the most modern fire-fighting and rescue appliances, as they had first priority on manufacture and exercised it to the exclusion of the urgent needs of cities and industries.

h. Training. Officer training was conducted at the National



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION CHART



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Institute for Air-Raid Protection and at the air force school at BONN. Preliminary training in fire fighting, before joining a field battalion, was given the enlisted ranks at one of the two recruiting battalions maintained at BONN-VENUSBERG and WÜRZ, SAXONY.

i. Rescue and anti-gas work were part of their duties but after January, 1945, the tendency had been to stress fire fighting, rescue, and first aid to victims, since 80% of the battalion engaged in fire work. Even that rearrangement proved insufficient, for the number of fires started in the last great raids of the war were so numerous that all the forces available were wholly inadequate and entire towns burned down. It was the opinion of German air force officers that the most mobile forces could do was to delay to some extent the destruction of a town and hold fires in check.

j. Quality of Service. The men of these motorized battalions bore themselves extremely well, for many had seen combat service in the previous world war and were not easy victims of shock. The testimony of many officials of bombed cities in GERMANY bears witness to the efficiency of these battalions in reducing damage to a minimum in the area of major incidents and in preventing minor incidents from becoming major ones. The valour of the men is further attested to by the heroic rescue of human lives, calling for the greatest self-sacrifice, while working with oxygen masks in great heat and smoke. A large number had been decorated with the Meritorious Home Service Cross and the Air-Raid-Protection Order for Conspicuous Valor. Loss of life in these units was sometimes great as they were subjected to falling bombs and machine-gun fire while standing by waiting to go on duty.

k. Communications. These units did not rely entirely on telephone communications which they used, however, when possible, but were fully equipped with wireless telephone sets of the standard German air force type. The chain of communications was from the air force district commander to the regimental headquarters, to the battalion field headquarters, to the company command posts. Portable sets of the "walkie-talkie" type were used, when available, from companies to sections and to squads, if the last units were detached from the company command post, as was often the case.

l. Staff Operations. Since 1942, when these battalions came under control of the air force, it was determined that they should be administered in the Air Ministry by Section I (a) Operation 3 of the air force, which later became Section I (a) LS following the reorganization of the air force command staff in March, 1945. The chief of air-raid-protection (Chef des Luftschutzes - Chef LS) under the new plan, became responsible for the organization, inspection and operation of all the motorized air-raid-protection battalions.

m. Field Operations. Under the control of the Chief of air-raid protection (Chef LS) of the air force general staff, the field



operations of the motorized battalions were directed by the air force district commanders through each regimental headquarters. When a battalion had taken to the highway on its mission, the staff proceeded in fast staff cars in advance of the units to the pilot station or rendezvous point (Lotsenstelle) of the stricken city, there to report by telephone to the chief of the local air-raid-protection service, receive area assignment, pick up a guide, and make an estimate of the fire situation to be attacked before the arrival of the main body of the battalion. The practical method described above was promulgated in air-raid-protection decree No. 44, issued at WIESBADEN on 14 December 1943, after much confusion had resulted from units becoming lost and overlapping the areas assigned other forces. Although there was some difference of opinion between local air-raid-protection leaders and the commanders of reinforcing units, it was finally decreed that a reinforcing battalion commander should be allotted a definite area rather than have his unit dispersed over different incidents, and that he should determine precisely how his unit should be deployed. It was also decided that reinforcing fire battalions should take their water from independent sources, such as static tanks, dams and water courses, in order not to reduce pressure in the regular mains which should be kept available for units equipped with less powerful pumps. Rescue and repair sections of the battalions were required to clear the routes through the city for the fire apparatus, deal with dangerous structures by shoring or demolition, and engage in general salvage duties, as well as in rescue work and the removal of the dead. When area fires resulted in violent up-draughts of air, the fire sections often had to abandon their task to assist the repair units in rescue work. Rescue work was also done by personnel of the battalion medical and ambulance squad, but most of their work was first aid in the treatment of eye injuries and burns. The physical strain on the troops of these units was often very great, their periods of duty in action sometimes exceeding 24 hours. Consequently, strict orders were given to avoid overstrain and undue fatigue, and provision was made for hot meals.

n. Release from Incident. Much discussion had taken place as to when these reinforcing battalions were to leave an incident. One view put forward was that the decision should rest jointly with the battalion commander and the local air-raid-protection leader, for, if reinforcements left too soon, fires were liable to break out afresh and the public felt deserted. It was contended by local authorities that at least some part of the battalion should remain on duty until everyone was rescued and fires were under firm control. The air force authorities, however, would not accept this view and decided that the moment of withdrawal must be left to the air force district commander.

4. Fire-Protection Police Battalions (Motorized) (Feuerschutzpolizei Abteilungen (Motorisiert)); also referred to as fire-protection police regiments (Feuerschutzpolizei Regimenter (Motorisiert)).

a. The organization of the mobile fire-police battalions was

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the creation of the German fire-protection police (Feuerschutzpolizei), the name given to the nationalized fire service in the 63 cities affected by the reorganization. These battalions were controlled by the commanders of the regular police and, therefore, came in the last resort under Himmler's headquarters at BERLIN. To all intents and purposes they were para-military in character, the officers holding assimilated rank comparable to like organizations in the army and air force, and personnel of all ranks wore the uniform of the German fire-protection police which was not unlike that of the German army.

### b. Plan of Organization.

- (1) The best evidence indicates that there were three regiments of the motorized fire-fighting units organized under the names of Hanover, Sachsen (February 1940), and Ost Preussen (April 1941), respectively. In addition to the three named regiments, two additional battalions were formed in occupied HOLLAND late in the year 1940, of Dutch citizens, commanded by German officers. In BOHEMIA and MCRAVIA, two battalions were organized of local personnel, also commanded by Germans. For the special protection of Hitler's BERLIN offices, one company was organized and permanently stationed there.
- (2) The original plan called for a regiment of three battalions of 450 men each, including the battalion staff of 45 men, with each battalion composed of three companies of 135 men each, including company staff. Until 1945, these units were organized exclusively for fire fighting but in other respects were similar in character to the motorized air-raid-protection battalions of the German air force. They were commanded by officer personnel trained in fire fighting and were manned by young, well disciplined men. They were equipped with the most modern fire apparatus available, and, although this service did not boast of as many units as the air force battalions, it was, in quality, among the best of the mobile reserves in the German system of air-raid protection.

c. Personnel. The units of the fire-protection police, the officer personnel excepted, were likewise affected by the inroads of the military draft and the demands of vital war industries. The original age bracket of the enlisted personnel was 30 to 40 years, but, at the end of the war when demobilized, the average age was 50 years.

d. Control. As created, these units operated as battalions in the field under regimental control, but that plan soon became impractical owing to the wide dispersion of important target incidents



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requiring their assistance, which seriously handicapped the plan of regimental control. Consequently, in July, 1943, a reorganization took place. The regimental plan was abandoned and, henceforth, the battalion became the basic operating unit. Some of the reorganized battalions, however, continued to be known and identified by their former regimental name.

e. Stations. These battalions were stationed in military barracks or large leased warehouses in small towns, strategically located whenever possible along the route of good highways within comparatively easy reach of potential target cities or industries. This plan avoided the danger of involvement in the target area proper, and permitted a rather short run to the duty assignment.

f. Chain of Command. Inasmuch as GERMANY and the satellite countries occupied by its troops were divided into army corps areas for defense purposes (Wehrkreis), it was necessary, when the services of these units were required, for the local chief of air-raid-protection (Ortsluftschutzeleiter) to communicate with the chief (Befehlshaber) of the regular police of the army corps area. Each corps area chief of police had at least one battalion or several companies of mobile fire police at his disposal, and he gave the necessary orders by telephone to the unit commander regarding disposition of his forces. If the fire-fighting reserves available were insufficient to cope with the situation and calls for further assistance were received from the bombed area, it was then incumbent upon the chief of the corps area police to request the office of the chief of regular police at BERLIN to dispatch aid from a neighboring corps area.

g. Release from Incident. Again the German principle in mobile reserve operation, that of accelerating the dispatch and prompt return of the units to reserve status, was evident in the management of the motorized fire-protection police. Their function was to bring the fires in large areas under control and to leave final extinguishment to local fire fighters, but it was always with reluctance that they were released from duty by the chief of the local air-raid-protection service under whom they operated, for they often constituted his best force.

h. Additional Function. It was originally intended that these units would confine themselves to the task of fire fighting but as the severity of air raids increased, it was decided in January, 1945, to add a rescue section to each company unit, since the rescue of human life was coincidental with fire fighting.

i. Manning Table and Equipment. Battalion tables of organization and equipment are shown in chart on page 83. Experience has shown that these battalions were kept, for the most part, at full table of organization strength throughout the war, replacements being drawn from the older ranks of regular reserve fire-protection police of the cities.

Vehicles of the Company Train

2	Hose Carrying Vehicles	2	8 crew
1	Turntable Ladder 26 meter (86 ft)	1	2 "
1	TLF 15 (Self propelled 330 g.p.m. pump with 550 gallon water tank)	1	3 "
1	Air Compressor Vehicle	1	1 "
1	Petrol reserve tank vehicle or truck for cans	1	1 "
1	Truck for crocodile trailer for UXBs	1	1 "
1	Workshop vehicle with lathe and other tools	1	3 "
1	Field Kitchen	1	4 "
4	Trucks	4	4 "
Total 13		Total 13 427 = 40	

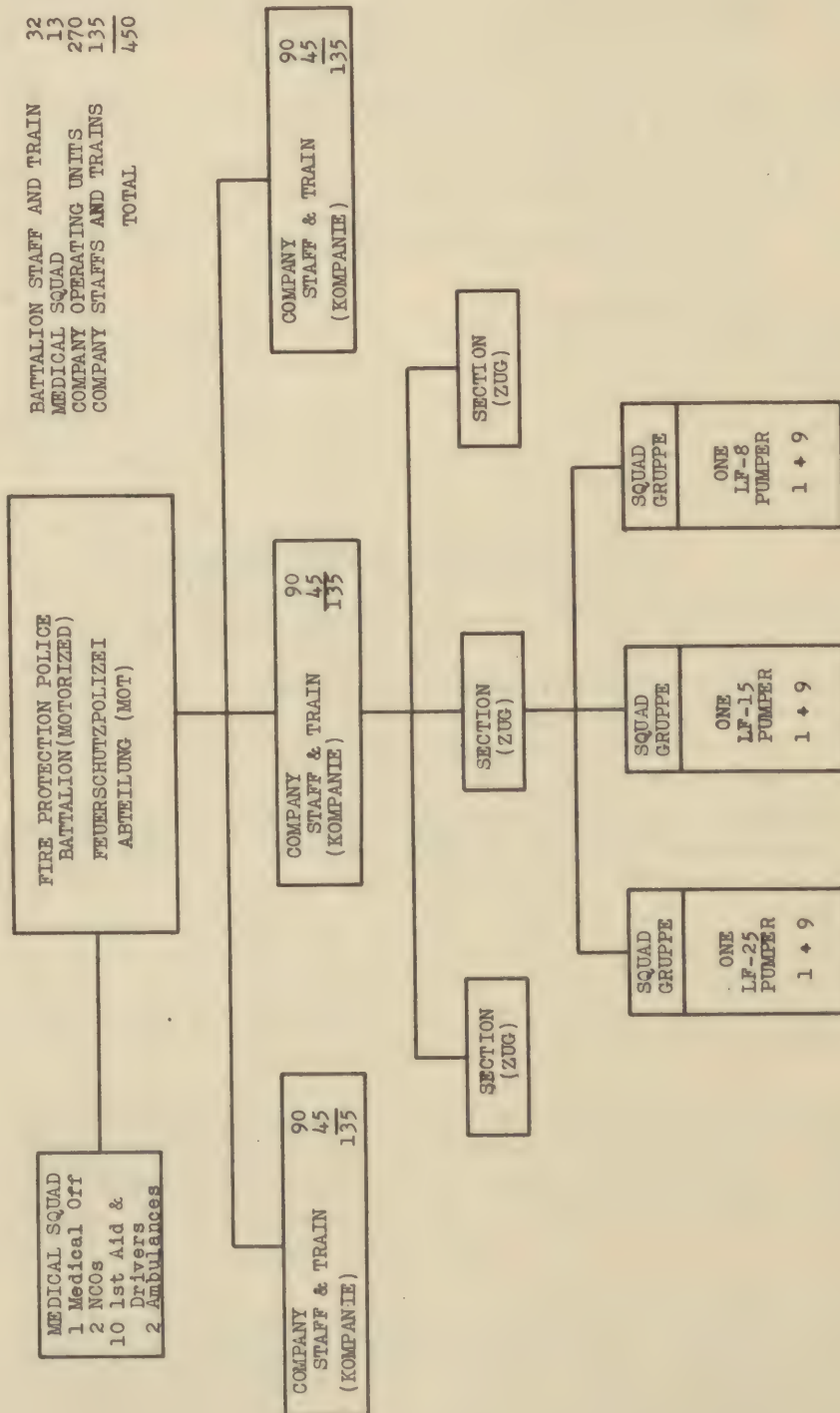
Tools Carried by Repair Sections

- 1 Motor generator and six searchlights
- 1 Shear legs
- 2 Chain and block sets (2 & 3 ton)
- 1 Heavy lifting jack
- 1 Set of compressed air tools
- 1 Set of oxy-acetylene cutters
- 1 Power saw with assortment of small tools carried in fitted chests



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION CHART



BATTALION STAFF AND TRAIN 32  
 MEDICAL SQUAD 13  
 COMPANY OPERATING UNITS 270  
 COMPANY STAFFS AND TRAINS 135  
 TOTAL 450

90  
45  
135

90  
45  
135

90  
45  
135

j. Training. The entire personnel of these units was given extensive training at the State (Reich) Fire School located at BEESKOW near BERLIN, which had the reputation of being the best of its kind in GERMANY.

k. Pay and Conditions of Service. For the most part the officer personnel was composed of young men of military age who had been granted a deferment, since service with these battalions was compulsory, as was the case of all German police organizations. Pay and conditions of service were the same as those of army troops generally. They were usually not armed, but carried the small arms necessary to guard quarters and motor vehicle parks. The fire apparatus used by these battalions was of the latest German design and, like the equipment of the motorized air force battalions, was maintained at all times in excellent condition. A ten-days supply of rations was kept on hand at all times.

l. Operations. In field operation, these units acquitted themselves admirably in fire-fighting technique, as would be expected of well trained, well disciplined and properly equipped forces. They left a favorable impression in the cities where they operated because of their fine spirit of cooperation with local authorities.

m. Communications. The battalion headquarters of these units had direct telephone connection with the office of the chief of regular police of the army corps area, but maintained contact with units of the battalion in the field by means of land telephone and motorcycle dispatch riders. Field telephones and cable equipment were carried by battalions for the use of companies when land lines were cut. When a unit left its headquarters on a mission, the staff proceeded in fast cars and reported to the nearest pilot station of the city, received its area assignment, made a reconnaissance at the site of operation and returned to the pilot station to lead the units to the fire area, thus saving the time of the fire apparatus sections in finding routes clear of fire and debris and location of water hydrants.

## 5. Volunteer Fire Brigades (Freiwillige Feuerwehren).

a. These volunteer fire-fighting organizations were the units that normally protected the smaller towns and rural communities of GERMANY and their size, training and equipment were in accordance with the needs of the area from which they came. Because the type of building construction in GERMANY required most German cities to maintain only a minimum professional fire department, it was the custom to rely upon the support of fire departments from nearby villages, especially during wartime. These volunteer units constituted the cities' first line of reserve, for the fire units of many villages could often reach a city in a matter of minutes. At the outbreak of war there were 1,800,000 of these volunteer firemen organized in about 50,000 brigades. Many were called up for service in the armed forces, but in 1942 there were still 1,100,000 or more including the Hitler Youth trained in fire-fighting.



b. Plan of Organization. Isolated local fire companies were scattered throughout the countryside at the beginning of the war, and it was decided in September, 1943, by the Party through its local sub-division leader (Gauleiter), to organize them into companies (Bereitschaften). It was intended that each company would consist of approximately 70 men, divided into two platoons (Züge) of three squads (Gruppen) each, in accordance with the common German plan of fire department organization. Only those rural units having the best personnel and modern motorized fire apparatus were selected for company organization, and since this move was ordered by the Nazi Party, little dissension was raised by individual units which might lose local prestige and identity under the reorganization plan. The size of the companies differed, however, in various parts of GERMANY, depending on the location of villages and the equipment they possessed. The organization of these groups into companies was quite successful as it improved their efficiency, provided better organized leadership, and offered opportunities for training in fire-fighting technique, which hitherto had been acquired only in the school of experience in small communities.

c. Personnel. The personnel of these volunteer units consisted of farmers and small town business people of over 40 years of age, or those beyond the military requirement group.

d. Allocation. When the assistance of the rural fire companies was required by a city, it was necessary for the local chief of air-raid protection to call upon the chief of the regular police of the appropriate political sub-division and report the need. The latter official, exercising supreme authority over police and fire matters in the sub-division, would communicate by telephone with the seat of local government in the rural area and from that office the village volunteer fire companies received movement orders by telephone. Coming from areas not likely to be subjected to air attack, these units responded with enthusiastic promptness, many times leaving their villages devoid of any fire protection. A very practical plan for utilization of these volunteers was devised by the chiefs of fire service in HAMBURG, MUNICH and AUGSBURG, who catalogued the brigades that were within 19 miles (30 kilometers), or one hour's distance, for the first alarm call, and those within 38 miles (60 kilometers), or two hours' travel, to be called on the second alarm. Those units whose services could be spared the least by their own communities, regardless of the travel distance, were called last and then only in the greatest emergency.

e. Communications. When land telephone service was interrupted, motorcycle couriers were used to call volunteer fire companies to a city. However, in Army Corps Area No. 10 (Wehrkreis X) in Northern GERMANY, a system of wireless communications was established in February, 1943, from a monitor station at KIEL to all volunteer fire departments in that war zone, and it was successfully employed until the end of the war.

f. Equipment. The type of vehicle and other equipment of these

units varied widely according to the needs of the community from which they came. They possessed no ladder trucks because no multiple-story buildings exist to any degree in the rural villages. After company organization had been perfected, the one heavy squad of each platoon was equipped with a motorized pumper of 400 gallons per minute capacity (the LF-15 German type), four hose carriers and one hose trailer with 656 feet of B hose and 1,230 feet of C hose. The light squads, of which there were two in each platoon, generally had one 220 gallons per minute (LF-8) motorized or trailer pump, four hose carriers, one hose trailer with approximately 900 feet of B hose and 875 feet of C hose. In addition to the above, each group was expected to bring with them any useful rescue equipment it possessed, but fire fighting was their principal mission. Many units were completely uniformed, but all wore an identifying swastika armband.

g. Field Operations.

- (1) Being composed of volunteers from rural farming communities, these units were among the first to be released from duty in order that their members might return to their daily occupations, but experience in many bombed cities reveals a record of several days of continuous service.
- (2) They did not usually require complete instructions as to direction and location of city thoroughfares when reporting to the pilot station on arrival at a neighboring city, and, often being acquainted with the location of water supplies, they were able to get into action in rapid order. It also made the task of duty assignment quite simple for the chief of local air-raid protection who utilized his knowledge of the character and efficiency of each nearby rural fire unit as it arrived.
- (3) During the early part of the war when gasoline was more plentiful, many of the volunteer companies from small towns five to ten miles from the city undergoing attack, would report for duty immediately without request, having heard the sound of air-raid sirens, noise of bursting bombs, or seen the smoke or fire. However, after January, 1944, when the use of motor fuel was greatly restricted, these units would report only when called.

h. General Summary. Opinion as to the quality of service rendered by these units differed with the efficiency and training of the companies engaged in various cities, some claiming they were poorly trained and quite ineffective, while other officials were extravagant in their praise of the able assistance rendered in keeping down



extensive fire losses. However, in the main, the record indicates that the volunteer fire departments from the rural areas comprised about 40% of the total fire strength, including other motorized reserves available to a city.

6. Protection Service Battalions (Schutzmannschaft Abteilungen).

a. This organization, with headquarters at BERLIN, like that of the fire-protection police, was the creation of Heinrich Himmler, chief of the German regular police (Ordnungspolizei). All large cities in GERMANY were ordered by Himmler in 1940, to create as many units of these auxiliary police as possible from the ranks of men who had had previous police experience or who had taken voluntary retirement from the city police force and were on the reserve list. It has been estimated by various German police officials that, as a result of this order, between 100 and 150 battalions of 450 men each were organized in GERMANY, for the strict enforcement of war-time measures. Service in the protection service battalions was not voluntary, many men of the 40-50-year age group being drafted for duty. Officer personnel was carefully chosen from among strong Party supporters in the ranks of the regular police throughout GERMANY.

b. Plan of Organization.

- (1) These battalions followed the military plan of organization, being divided into five companies, three of which were police service companies, one staff company, and a heavy machine-gun company (see chart on page 88 ). They were equipped as motorized troops with staff cars, trucks, rolling kitchens, weapons carriers and small vehicles. Personnel wore the uniform of the German regular police, and were provided with small arms and automatic weapons.
- (2) Owing to the shortage of motor fuel for strictly military requirements, these police battalions were re-organized in June, 1944, and became partially horse-drawn, the battalion strength being increased to 570 men.

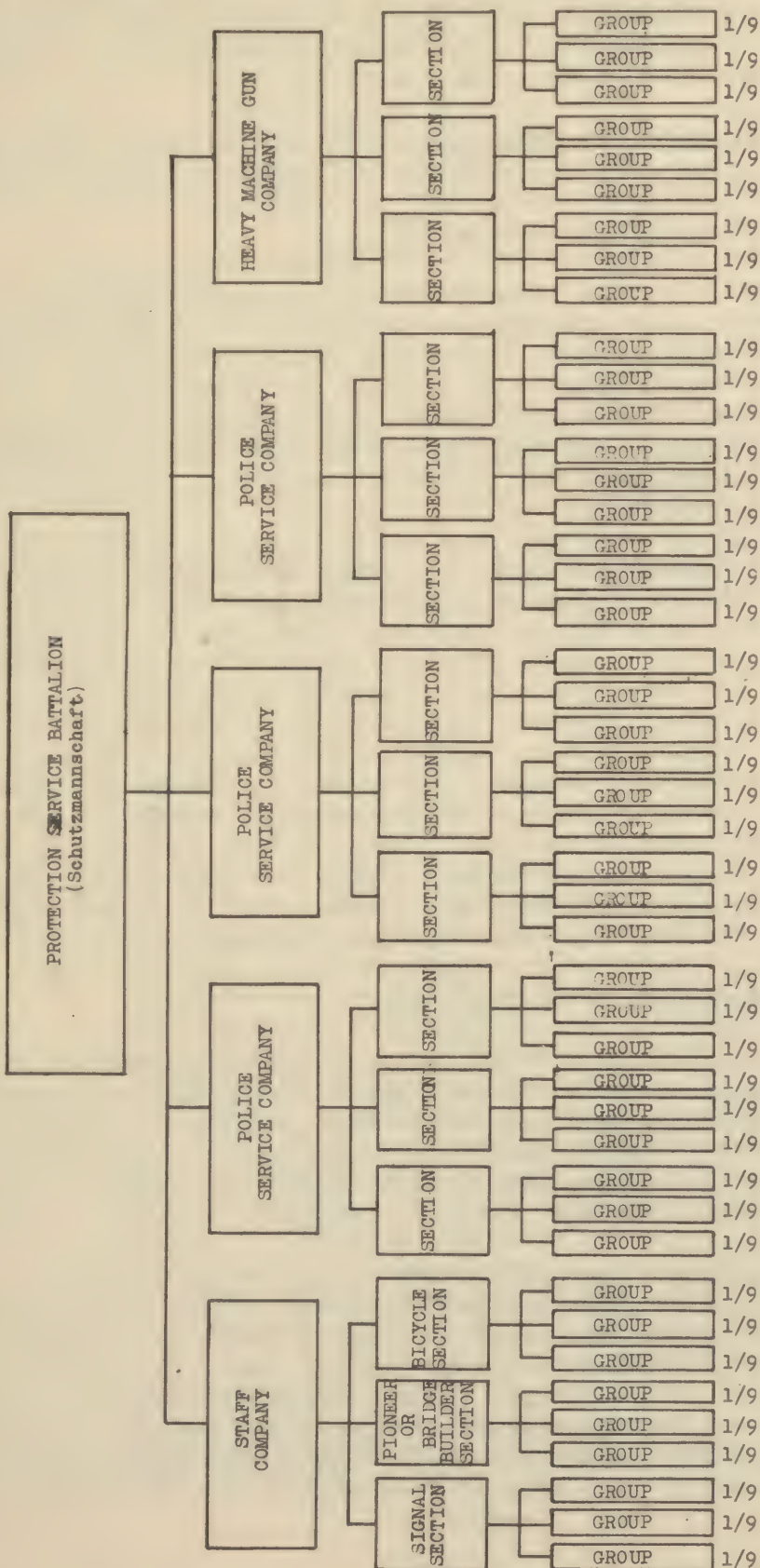
c. Operation.

- (1) After the German army occupied neighboring countries, many of these battalions were called to service with the army in the rear areas for the apprehension of German deserters and those of satellite nations, and to prevent civilians from committing acts of sabotage in the rear echelons. During the retreats of the German army, these battalions were required many times to supply the rear guard and to cover the withdrawal

# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION CHART

JUNE 1944



BATTALION STAFF  
45 OFFICERS & MEN

5 COMPANY STAFFS  
45 GROUPS Each 1 Off  
9 Men

75 OFFICERS & MEN  
450  
TOTAL STRENGTH 570



and, in so doing, many of them were utterly destroyed. Although serving with the army, they were never considered to be a part of it but were special troops attached for police duty.

- (2) The units not engaged with the army were sent from one city to another as the emergency dictated as a mobile police reserve, but, in effect, they were a mutual-aid instrument.
- (3) To obtain the services of these units, it was necessary for the chief of the local air-raid-protection service to telephone his request to the chief of the regular police in the army corps area having authority and jurisdiction; but, to secure additional units outside of the immediate corps area, it was necessary to go through the office of the German regular police at BERLIN.
- (4) These special police forces were housed in barracks in each city, and maintained land telephone connection with local air-raid-protection officers and all echelons of the regular police. While on detached service in another bomb-damaged city, they assisted the regular police in traffic direction, prevention of looting, the removal of furniture from damaged buildings, and patrolled areas known to contain unexploded bombs, and evacuated people from those areas. Being experienced policemen and well equipped, they constituted the principal police reserve to any city and usually remained on air-raid duty for two or three days at a time, providing their own maintenance except quarters.

## 7. Army Troops (Wehrmacht Truppen).

a. The employment of army troops following saturation air raids was always necessary, because, invariably, the local air-raid-protection forces were overwhelmed and lacked sufficient manpower to restore order, carry on the necessary rescue work, and remove debris from the streets. The army constituted the one large mobile reserve of manpower that could be deployed quickly for general utility purposes.

b. Army Orders for Assistance. Early in the war Hitler directed the army high command to issue general orders to all commanders of troops stationed in barracks, posts or training camps to respond to the call for air-raid-protection assistance with all available troops and useful equipment at their command. It was not necessary for troop commanders to clear with a higher military echelon for authority to act immediately, and they would take all and every action considered appropriate to the occasion, upon request from the town mayor or police president.

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c. Command. When troops were engaged in relief of a city, the senior officer present assumed authority over all military units pursuant to War Office instructions, and, in exceptional cases, provided the circumstances warranted, he might assume command over the entire post-raid operation. Otherwise, when general relief working parties were furnished by nearby army posts, the local authorities instructed the troop commander on the scene concerning the tasks to be performed, leaving final disposition of the troops to him.

d. Training. Troops engaged in this type of work were called "help troopers" (Wehrmacht Hilfskommandos) but they were not specially trained in any phase of air-raid-protection work, being for the most part, troops in training, or the strategic reserves of the combat forces.

e. Equipment. Army troops were transported in their own trucks and they brought rolling kitchens with a large supply of reserve rations to carry on mass feeding of the bombed-out populace, as well as small tools and equipment for general labor duty. In addition to the above, the army fire brigade units, used for the protection of large posts, camps or stations, might be dispatched to assist the fire-fighting forces. They were generally equipped with heavy-duty pumpers of 660 gallons per minute (LF-25) and 400 gallons per minute (LF-15) capacity types, with a large reserve supply of hose.

### f. Operations.

- (1) The army was required during the war to furnish troops in large numbers to every bombed city to perform such tasks, in addition to fire fighting, as rescue of trapped persons from cellars of burning or demolished houses, clearance of passages through the streets, search of debris and buildings for bodies, establishment of food distribution stations for the populace where army personnel prepared meals in rolling kitchens, removal of furniture and records, and performance of general labor of all kinds required by the circumstances. In many cities, the necessary demolition work which had to be carried out promptly to allow rescue and salvage operations to proceed, was supervised by experienced army engineers, and, according to reports, it was usually done in a technically correct manner. A serious difference of opinion often developed between army engineers and city engineers regarding the extent of demolition work, since it was generally hoped by local authorities to save walls and partitions as framework for reconstruction. As a matter of fact, however, walls which were left standing often collapsed causing additional loss of life and damage.



- (2) It is noteworthy to mention that in addition to the assistance rendered by regular army troops (Wehrmacht), units of special troops (Waffen S.S.), as part of the armed forces, frequently sent construction battalions to bombed cities to render emergency help, as well as police and security companies to aid local police maintain order.

8. Storm Troop Battalions (Sturm Abteilungen (SA)).

a. Origin. This unit was formed by the Nazi Party in 1921 as a para-military organization to protect Party meetings and leaders, to fight political enemies and to provide pre-military training for an army of the future, at a time when the national army (Reichswehr) was limited by the peace treaty to 100,000 men. The highest leader was Hitler himself; his deputy was the chief of staff (Stabchef). In January, 1933, the storm troop organization was reported to have had only 300,000 members, but after the seizure of power, its strength increased rapidly and, at the end of the war, it was reported to be 1,500,000 strong. During the first year of Nazi rule, it had visions of replacing the army itself, or of keeping the army as a cadre while it became the national militia, but those attempts were crushed in the purge of 30 June 1934, when chief of staff Röhm was killed. During the years 1934-1939, the German people considered the storm troops to constitute a sports and social club and were asking in the press what duties they had to perform, when Hitler very promptly entrusted them with the task of pre-military training of all German nationals, thus restoring some of their prestige. In 1943 they were given the task of militarizing all males of 18 to 65 years of age for services on the home front.

b. Organization and Functions. The storm troops were organized similarly to the army, into corps, divisions, regiments, battalions and companies. Before 1938, there were 21 corps, with eight more added from the occupied countries during the war. They were reported to have trained over 2,500,000 men for the army while assisting the air-raid-protection services in such duties as guarding important buildings, transportation, bridges, and prisoner of war camps; fighting forest fires; controlling of transient and general labor in air protection. Being divided into seven special units, the first six of which were for service training, the storm troops devoted the seventh section to the service of bombed cities. These troops were solely at the disposal of the Party district leader (Gauleiter) to be used in an emergency, if the police and air-raid-protection forces appeared to be insufficient to cope with the situation. It is for that reason that they are discussed briefly in this report as a mobile police and special service reserve among cities and towns of the same Party district (Gau), although there is little record to their service in that capacity.

c. Quality of Service. Being scattered throughout cities and the countryside and not being alerted for assembly on the sound of



air-raid warning, the storm troop units were difficult to collect at rendezvous points for post-raid police duty and they did not establish an enviable record in air-raid-protection work as such, but they were the strong arm of enforcement of all Nazi decrees.

9. Construction Organization - Todt Organization (Amt Bau - OT).

a. Origin. This was a construction and repair organization established long before GERMANY's entry into the war, having been originally a part of the office of the General Inspector of the German highway system, directed by Dr. Todt, a distinguished engineer, from whom it took its name (Todt Organization) in 1938. With the march into FRANCE in 1940, it was reorganized into a semi-military organization, the personnel adopting the military type uniform of the German Labor Corps. Although the OT originally drew its personnel from the German Labor Service (Reichsarbeitsdienst) (RAD) and was at that time a civilian organization, it became para-military, both in functions and conditions of work. In the occupied countries, it undertook such gigantic construction projects as the Atlantic Wall and large concrete submarine pens, as well as many sizeable improvements to provide larger military facilities.

b. Strength. Whereas before the war it was composed of some 300,000 men, it was later expanded into an organization of over 1,000,000, employing chiefly foreign labor outside of GERMANY.

c. Plan of Organization. After the death of Dr. Todt in February, 1942, it was taken over by the Minister (Reichsminister) of Armaments and Munitions, Albert Speer, later of the Speer Ministry of Armaments and War Production (1944). When air attacks became heavier, Speer endeavored to create an organization with new talent out of the still inexhausted resources. From that action there came the reorganization of the construction office (Amtbau) with a main committee for construction headed by men from the building trades and their emergency service (Reichsondereinsatz). This new combination cooperated very well and achieved good results, especially in the removal of bomb damage. Because of certain dissension, however, Speer set about organizing a special mobile regiment from the building trades personnel already enrolled in the Todt Organization. The unit was designed originally to operate in the RUHR area, with headquarters at ESSEN under the command of an emergency group leader (Einsatz Gruppenleiter). The total strength of the regiment was about 1,000 men, 400 of whom were RUHR miners. It was divided into three battalions (Abteilungen) of 325 men, plus a headquarters staff of 25. In the Regiment Speer, as it soon became known, as well as the Todt Organization, officer rank was bestowed on the basis of capability and professional accomplishment. If, therefore, a man had been a construction foreman, he received the corresponding rank, without having to go through the lower grades. That was the simple reason, according to Speer, why this unit could complete better work than the engineer or construction battalions of the German army in which rank was not always indicative of capabilities.



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d. Equipment. This regiment was equipped with 250 vehicles, comprising trucks, heavy track vehicles, and, in addition, 60 trailers with mobile kitchen equipment capable of providing 36,000 meals at one time for bombed-out persons. It was also intended that this unit would be the best mobile team available to assist a damaged city in heavy rescue work, using miner's tunnelling technique, to make installation repairs, and to provide mass feeding. Although equipped to do debris clearance, neither this regiment nor the OT ever actually performed that task which was considered the function of local authorities.

e. Request for Services. Application for the services of this regiment was made by the town mayor and was addressed, in the first instance, to the commander of the RUHR staff of the unit, but final decision was left to Dr. Speer.

f. Administration. The organization Todt of which the Regiment Speer was a part, had two main divisions in its central office in BERLIN - the Home Office (Heimatsführung) which prepared all construction plans and operated the personnel bureau, and the Front Division (Frontführung) which had personnel and building bureaus. The latter division handled propaganda, allocation of work, food and billeting, insurance, camouflage and anti-gas, arms and munitions, the leaders' training school, police and security and liaison matters. The main regional organizations of OT came under this division.

g. Transportation. Transportation for the OT, was furnished by the National Socialist Motor Corps (N.S.Kraftfahr Korps) and it was organized into a separate transport brigade known as "Transportbrigade Todt", which handled all such matters for the regional organizations of OT located in FRANCE, HOLLAND, BELGIUM, DENMARK, NORWAY, the BALKANS, and RUSSIA.

h. Control. Many contracting or building firms became part of the OT through contractual arrangements in the building of barracks and military works and, like the common labor forces employed, were subject to military law for desertion or breach of labor contract.

i. Self-Maintained. Handling the large numbers of men in the several regional organizations, as it did, the OT was required to maintain its own medical services with doctors, dentists, hospitals and convalescent homes, as well as to supervise and police transient labor camps.

j. Change of Function. After Allied air raids had caused so much material damage to public utility services, it became necessary to stop the construction projects in the homeland and to train the forces of the OT to the task of restoration and repair, and in that field they were the only mobile organization in GERMANY.

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### 10. Emergency Juvenile Police Reserve (Schnellkommandos).

a. Origin. The idea of organizing mobile police assistance squads for supporting of fire guards was developed at least as early as the beginning of 1942, and a further development of using in these squads young men 15 years of age and upward originated in HAMBURG. This movement, after achieving local success, was adopted in many other cities of GERMANY. Being chosen from personnel possessing automobiles, motorcycles, and bicycles, they were known as "Schnellkommandos", implying dash and speed of movement, and were often sent to the relief of a neighboring city undergoing an air raid.

b. Plan of Organization. Many of the young men of these units belonged to the Hitler Youth Movement, but it was never sponsored by that organization nor recognized nationally as one of its youth activities. The HAMBURG plan for these units called for the creation of teams of four youths each, working under the leadership of one regular city policeman. Following an air-raid alert, members of these teams would report for duty to police precinct headquarters.

c. Equipment. Besides small motor vehicles each team was provided with a two-wheeled cart carrying 26-gallon pump cans of water and small hand extinguishers to take care of small fires. Later some of these squads were equipped with a trailer pump (TSA-8).

d. Duties. In addition to minor fire extinguishment, it was planned that these units would assist the police in transmitting information regarding location of fires reported by roof spotters or fire watchers, assist old and feeble people to safety and perform duties of traffic direction at the scene of emergency.

e. Command. Each group chose its own leader and assistant leader, but the organization at the city-wide level had a non-commissioned officer of the regular police as its monitor, and when dispatched to a neighboring city as a relief column, it was accompanied by the regular police leader of these units.

f. Comment. These units were of little value in large concentrated air raids, being of immature age and not too well trained or disciplined, but in emergencies minor in character, they rendered considerable assistance to local precinct police in messenger work and fire fighting during the excitement of an emergency. As one German police official put it, "It was a good way to utilize the energy and maintain the interest of young people in air-raid protection".

### 11. Technical Emergency Corps (Technische Nothilfe).

a. Origin. Sometimes referred to as the organization for the maintenance of public utility services, this group was formed in 1919 out of the technical units of one of the free corps which marched into



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BERLIN in January, 1919, to crush the uprising of left-wing workers. During the early days of the Weimar Republic, the Technical Emergency Corps functioned as a strike breakers' organization concerned with maintenance of vital public services. Recruiting was carried on among young technical students. It was hated by the workers. During the later years of the Weimar Republic and until the ascent to power of the Nazis, they were relatively unimportant, being used mainly as a technical reserve in case of disaster. It was reorganized in 1936 by the Nazi Party and made subordinate to Himmler, and in 1939 its functions were stipulated by law "to be used in public emergencies and for certain special tasks of military and civil defense" and it was classified as "technical auxiliary police", responsible to the Minister of the Interior. Then, in 1942, it was incorporated into the regular police (Ordnungspolizei) and given the uniform of local police (Schutzpolizei), with its own traditional badge and distinguishing marks.

b. Source. Personnel for these units was recruited in all of the cities of GERMANY from among skilled technical workers on a voluntary basis, although some specialists were drafted by the army for special work in bridge building and signals. Many of the men were above the military age group, the range being from 45 years upwards, but, regardless of age, special companies were uniformed and armed as light infantry for service in occupied countries as technical formations of regular police.

c. Operations. In each German city the local organization was intended to be used principally in air-raid-protection work, preparing vital installations as far as possible against bomb damage, but it was more extensively engaged in post-raid restoration of public utilities, repair of damaged seaport docks, petroleum depots and other specialized projects. Its operation was coordinated by the chief of the regular police of the army corps area (Wehrkreis), since its services were used in emergencies occurring within the area, but many specialized repair teams were dispatched from BERLIN all over GERMANY to handle highly technical tasks. At first, it was difficult to secure sufficient technicians to fill the ranks of this organization, but as air bombardment increased and destroyed many industrial plants, more specialists became available for this service and a substantial surplus for mutual-aid support was created. Experience indicates that these forces were automatically called out following any 100 bombing plane raid.

d. Comment. The work of these forces was responsible to a large degree for the prompt repair and restoration of public works and vital war production facilities. It was on the ground at the time of attack, was a well established and coordinated organization, and was directed by skilled leaders. No estimate of its total strength is available as many of these technicians were also identified as members of other air-raid-protection groups and technical groups, which was a common German scheme designed to impress the public with Party preparation for defense.

12. Trades Groups (Wirtschaftsgruppen).

a. Origin. This organization of skilled workers from the municipal public works field was organized in 1941 by the Ministry of Economics, and after the creation of the Speer Ministry in 1944, was taken over by that office. It was used exclusively in the emergency repair of public water, gas and electric supply systems. There were three separate divisions in the Speer Ministry, which handled, respectively, the administration of water supply, gas manufacture and distribution, and electric power and distribution; the first two utilities were under a deputy minister who was also chief of the trades group, while electric power distribution was controlled by Speer personally as far as the technical operation was concerned, the administration being left with the Ministry of Economics. Each city was required to organize sizeable emergency repair crews for each of these three services for immediate dispatch to other cities on order of BERLIN authorities or their district representatives throughout GERMANY. These units were, therefore, a type of mutual aid.

b. Plan of Organization and Operation.

- (1) Water Supply Repair. A water works director of one of the cities in each army corps area (Wehrkreis) was chosen by BERLIN as the local coordinator for repair of emergency water systems. When outside assistance was needed, he would select the cities from which to draw the crews and issue appropriate instructions. Having a working knowledge of the size of water mains in each city of his district generally, he would send only properly qualified foremen, and pipe fitters.
- (2) Gas System Repair. Assistance of specialists in this utility field had to be secured directly through the office of the Chief of Trades Groups (Wirtschaftsgruppen), who selected the pipe fitting and valve repair crews to support the bombed area.
- (3) Electric Power Distribution. The Speer Ministry of Armaments and War Production, which also controlled the essential electric energy, appointed a district power coordinator in each army corps area, who had over him a regional director in charge of several corps areas (usually an official of the Prussian Electric Works). When decisions could not be reached amicably in the field, final decision was left to Dr. Fischer, a deputy under the Speer Ministry and director of power distribution. Incoming electric power repair crews traveled in completely supplied repair trucks, since they were required by



the nature of their task to work independently of other crews. These units were composed of technicians skilled in handling high voltage cables, and the repair of transformers and of lines less dangerous to handle was left to local forces.

c. Comment. Water and electric power especially were required by the war production machine, and the mobile repair crews stayed on the work of restoration in vitally important industrial centers, sometimes for many weeks, until service to industry was completed. As the coal shortage, due to transportation interruption, affected the manufacture of gas, repair to those systems in many cities was deferred for more urgent work. Much improvement in the plan for prompt and efficient help in the public utility field was noted after the advent of the Speer Ministry which acted in a direct manner and eliminated much delay and confusion.

### 13. Telegraph and Works Troops (Telegraph und Bauampttruppen).

a. Origin. This service was organized in 1941 by the Ministry of Postal Service (Reichspost Ministerium) from among specially trained communications personnel in the large postal districts of GERMANY. Fifty crews of special repairmen were organized as mutual-aid groups for the emergency repair of the postal service telephone and telegraph lines in bombed areas. This service has been known by several different titles; first, it was the catastrophe-aid service (Katastrophenhilfe); then, in 1943, the air-protection organization for maintenance of utilities (Luft-nothilfe); and, finally, in 1944 and until the present, is referred to under the general title of telegraph and works troops.

b. Plan of Organization. The personnel, being recruited from the ranks of regular postal department employees, was divided into working teams according to the specialties of the members, such as a line repair team (Streckenbautruppe) of 15 men composed of a leader and 14 cable splicers, linesmen, truck drivers and laborers; a cable welding team (Kabellötertruppe) of 15 men comprising a foreman, cable welders and laborers; a distribution crew (Schalt Truppe) of five men consisting of a leader and four technicians; a dial exchange team (Wählamt Truppe) of four men; a long-distance exchange team (Fernamtstruppe) of three men; power teams (Starkstromtrupps) of five men each; mobile generator teams (Netzersatztruppe) of three men each; an accumulator team (Batterie-und Lade-Truppe) of three men; and an emergency distribution reserve (Notvermittlungsaufbautruppe) crew of four men.

#### c. Operations.

- (1) The director of postal service, BERLIN, ordered these units from one postal distribution area to another as emergencies arose, but kept one complete team of the aforementioned specialists at BERLIN at all times as

a strategic reserve. They traveled in their own repair trucks which were fully equipped for the emergency and, on arrival at destination, were quartered and maintained by local authorities. The seriousness of the damage often required their presence for as long as six weeks. These troops wore the dark blue uniform, trimmed with red markings, of the regular postal service, but were not armed.

- (2) One of the outstanding achievements of the regularly established departments of German government was that of the postal service (Reichspost) in the prompt restoration of its communication facilities following air raids, as both military and air-raid-protection forces had to rely almost entirely upon land line facilities for air attack intelligence, owing to the shortage of radio and wireless devices. Their advance planning appears to have been excellent with respect to providing trained repairmen and replacement materials.
- (3) The chief of maintenance of the local postal service was required to make a quick estimate of the bomb damage in his postal district. He estimated the part that could be restored by local forces, and telephoned or telegraphed his estimate directly to BERLIN, requesting reinforcements, if he thought them necessary.

#### 14. Food Relief Columns (Bayern Convoys and Fuchs Convoys).

a. Origin of Names. Food relief columns took their name from one of the Party directors of relief, Dr. Fuchs, or, as in the case of "Bayern", from the Province of BAVARIA where the motorized food relief column idea originated, but "Bayern" and "Fuchs" were synonymous in their application.

b. Equipment. These units were mobile relief columns, equipped with kitchen units, stores of food, clothing and medical supplies, organized by the Nazi Party at the national level and dispatched on orders of the Ministry of the Interior. Usually they consisted of large motor truck convoys, but sometimes they were made up of 12 to 15-car railroad trains, with specially equipped kitchen, refrigerator, supply, and passenger cars. The kitchen cars were furnished with two steam kettles, each of 132-gallon (500-liter) capacity from which food could be directly dispensed at any railroad siding.

c. Plan of Operation. Movement of these convoys was made at the request of the Party district leader (Gauleiter) of the local political sub-division who gave BERLIN an estimate of the supplies needed. It was planned that each mobile convoy or train would be capable of



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providing 30,000 substantial meals per day. While the Party took credit in the public press for all relief extended to the bombed-out populace, the food and supplies provided by army troops usually exceeded many times over those of the Party convoys.

d. Comment. The favorable publicity given these much-advertised Party relief columns was not entirely borne out in actual field performance, as often they arrived too late, were insufficiently supplied and had many motor trucks not in good repair, which retarded progress. The food train idea was sound in principle, since the trains were more substantially equipped to carry on mass feeding over a longer period than truck convoys, and fresh supplies could usually be brought up by rail. The problem of quarters did not arise as the crews lived on the trains.

XII. POST-RAID CLEARANCE, REPAIR, AND  
RESTORATION

1. The mayor of a city was responsible for the repair and restoration of a city after air attack. He customarily delegated that authority to an official of the city building office, usually called director of immediate measures or director of air-raid damage. In small and medium-sized cities, this official normally had supervisory or coordinating authority over street clearance, salvage of household goods and materials, demolition of unsafe structures, and repair of homes.

2. The two chief organizations concerned in post-raid activities in all German cities, were the air-raid-protection police with primary responsibility for clearance and demolition, and the city building office which carried out reconstruction and repair.

3. Clearance and Street Repair.

a. Although, in theory, many organizations were concerned in the clearance of streets after air raids and it has even been officially stated that clearance was a responsibility of the individual, the actual work in the immediate stage was carried out in most instances by the air-raid-protection police. Normally, the police were concerned, first, with the clearance of a path through the debris to allow vehicles to pass, and then later, with the more complete clean-up. After very heavy attacks, units of the army or of prisoners of war were secured to assist in the debris clearance.

b. In large cities, a pre-determined order of priority existed for clearance, but, in smaller places, streets were simply cleared in order of their general importance, as rapidly as the clearing crews could get to them. In some localities, the air-raid-protection police had the full responsibility for that task, but in heavily attacked targets, the street department normally took over the final clean-up job after the air-raid-protection police had opened the streets for passage.

c. Occasionally the city building office had the full responsibility for street clearance as a part of the immediate measures delegated to that office by the mayor.

d. Equipment used in street clearance work varied from city to city, but the principal items consisted of hand tools; picks, shovels, and wheel barrows. Conveyors were used in some places, and snow plows or tanks equipped with snow plow blades were given a trial in several cities at Nazi Party instigation, but apparently without success.

e. Repair of streets was normally carried out by the street department at the time it completed the clearance thereof.

f. Repair of utilities was handled by the utilities themselves, frequently with the assistance of the technical emergency service.



g. Industry was responsible for its own clearance and repair.

h. Clearing of streets so that emergency vehicles could pass was a task of high priority after a raid, and was secondary only to the rescue of trapped persons and the extinguishment of fires. However, the thoroughness of clearance varied a good deal in the different target cities visited. In some places, clearance beyond the immediate stage was slack, while in others it was rather thorough, except in those parts of the city that were completely destroyed and where clearance of side streets was unimportant.

#### 4. Demolition.

a. Demolition of unsafe structures was practiced to protect traffic and the public who might be endangered by collapse of the structure. Consequently, little attention was paid to walls in danger of falling unless they were so located that their fall would imperil traffic or nearby buildings.

b. Demolition was usually a function of the air-raid-protection police, although in one city the director of immediate measures became so displeased with the quality of demolition work carried on, that he contracted with a BERLIN firm to perform all that work. There is evidence that demolition work was sometimes carried out by army engineers, although local officials minimized the importance of their work.

c. Methods used for demolition included pulling walls down with cables usually attached to tractors or winches; use of high explosives; and, in some cities, the use of carbon dioxide tubes. The particular method was dependent upon the characteristics of the individual job, but toward the end of the war, it is reported that sufficient gasoline to operate tractors was not always available, and greater use of explosives became necessary. Statements were made in one city that the use of carbon dioxide tubes, rather than high explosives, was stipulated. In two cities where they were used, the responsible officials stated that this method was preferable to use of high explosives because it could be better controlled and did not endanger neighboring buildings.

d. The adequacy of demolition undertaken appeared to vary in the targets visited. There was a relatively large number of walls still standing in HANOVER that would not be considered safe in GREAT BRITAIN or the UNITED STATES. In HAMBURG, on the other hand, there were few dangerous walls close to streets.

#### 5. Salvage of Household Furnishings.

a. Removal of household furnishings after bombings was carried out by the affected householder, his friends, the air-raid-protection police, occasionally by the army, and by almost anyone who would help. The removal, however, was usually limited to placing the furnishings

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in a clear area, as, for example, moving them into the streets.

b. In most cities removal beyond that point by private individuals was forbidden by the authorities in order to minimize looting. A municipal department was designated to collect the salvaged household furnishings and remove them to salvage depots which were usually located in schools or large halls on the outskirts of the city. Salvaged goods could be claimed there by their owners who were supposed to have names and addresses marked on all furnishings. If such markings were lacking, identification had to be made by description.

c. Disposal of unclaimed goods varied in the cities investigated. In HAMBURG, due to the large number of bomb-destitute families and the severe shortage of furniture and other household necessities, furniture unclaimed at the salvage depots was sold to bombed-out families within a very short time after it had been collected. The reasoning behind this action was "the greatest good for the greatest number", and this philosophy was supported by the fact that the owners were compensated for lost furnishings by the war damage office. In AUGSBURG, on the other hand, salvaged furniture was never sold. It was kept indefinitely, if unclaimed, because the owner might have been evacuated and would want his own things back when he returned.

6. Salvage of Foodstuffs. Salvage of foodstuffs from damaged stores and warehouses was carried out both by city departments designated by the mayor for the task and by trade organizations within the food industry.

### 7. Salvage of Building Materials.

a. Salvage of building materials was customarily assigned to a section of the city building department. The thoroughness and efficiency with which such salvage was carried out showed great variations among cities studied.

b. In the larger cities, such usable materials as window frames, door sills, timberwood, sanitary equipment, pipe fittings, and other light weight re-usable materials were collected, taken to depots, and from there supplied to building contractors as the need for them arose in reconstruction. Heavier equipment, such as heating systems, heavy steel beams, and the like were inventoried and, when needed, the building contractor was instructed where to obtain it. Such common materials as bricks were not moved from the damaged sites, but permission to salvage them was freely given by the city authorities, either to contractors or private individuals.

c. In smaller cities no real attempt was made to collect salvageable materials, and the city authorities simply gave permission for private or contractor salvage activities, when the materials were required in reconstruction.



d. Evidence was found in all cities visited of the operations of Stab Major Shu, a section of the national Ministry of Armaments and Munitions, which was charged with the responsibility of salvaging steel, copper, brass, and other critical metals for re-use by foundries. This organization was established in July, 1943, and operated on a nationwide scale.

8. Estimate of Salvage Efficiency. An inspection of bombed areas in all cities visited indicated that salvage work was not carried out on a thorough basis. Usable building materials such as doorways and window sills were undoubtedly salvaged as they were required, and a large amount of wood had apparently been collected by individuals for firewood. There was, however, a great deal of scrap metal still lying around in houses bombed as early as 1943. The conclusion is that the building contractors did successfully gather salvage that was usable in household repair, but that scrap metal salvage for industrial purposes either was not particularly important, or it was inefficiently carried out.

9. Post-Raid Repair.

a. In the standard German pattern, the responsibility for post-raid repair of housing was assigned to the city building office, and the various phases of the task were handled by appropriate sections of that office.

b. Although the standard plan of operation did not always evolve until after heavy raids had demonstrated the need for decentralization, the procedure that finally came to be uniform called for the presence of precinct architects in each police precinct. It was their duty to report on the morning after each raid the extent of damage in their area, and, based on their reports, suitable action was taken to effect certain repairs. Damage was classified as (1) heavy damage, (2) medium damage, and (3) light damage.

c. Paralleling the city organization were trade organizations (labor) in the several building trades. The representatives of these labor groups knew the manpower and equipment available from the building companies, and they participated in the post-raid conference with the responsible officials of the city office and the precinct architects, at which time decisions were made as to the amount of repairs to be undertaken.

d. Minor repairs were usually carried out by the householder himself by using materials supplied by the building companies on an order approved by the city building office, or by using salvaged material from nearby destroyed houses. Even when the repair work was beyond the ability of the householder to carry out, he was usually required to assist in such ways as carrying tiles to the roof or taking down window frames and removing the putty so that the windows could be reglazed.

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e. First priority for repair after an attack was usually assigned to hospitals, doctor's houses and offices, food warehouses and stores, and similar establishments having a public importance. Second priority was given to houses that could be quickly repaired and could be used as shelter for homeless persons.

f. In larger cities, it appeared to have been the practice to assign areas of the city to individual building contractors whose function it was to go through their area doing all necessary repair to put lightly damaged houses in livable condition. The work was supervised by the precinct architects of the city building office who certified the repair bills to the war damage office for payment.

g. Emergency repairs were frequently rather primitive in type, the main objective being to supply weather-proof living quarters for as many persons as possible. For example, in those cases where the upper stories were destroyed, it was frequently customary to put a temporary roofing over the lower floors to make them habitable.

h. When it was the householder's desire to undertake major repairs, it was usually necessary for him to secure the approval of the building police, a section of the city building office. The building police certified that the work was vital and that the contractor's bid for the job was reasonable. In the city of HAMBURG, however, the building police in 1944 began ordering this type of work done without consulting the owner.

i. The extent of repairs undertaken showed considerable variation. In one city, no repair of more than \$1,000 (2,500 Marks) was attempted after the most severe raids, but in another city, major repairs were continued in some instances almost to the end of the war. In general, however, repairs were rather thorough up to the time of catastrophic raids, after which the amount of major work was either drastically reduced or eliminated entirely. This change in policy was caused not only by shortages of materials and manpower, but, also, by the frequency of raiding which continually interrupted work in progress and made it necessary to divert labor from repair to clearance tasks.

### 10. Construction of Temporary Housing.

a. As might be expected, the construction of temporary housing assumed far greater importance in HAMBURG, a major seaport and war industry center, than in any of the other cities investigated.

b. Temporary housing included the construction of barracks, of both cement and wood; concrete single dwellings known as "platten houses" (see illustrations, pages 105-107); Ley houses which consisted of two rooms and were of prefabricated wooden construction (see illustration, page 108); privately constructed houses, built by individuals of material salvaged from bombed structures; and apartments reconstructed in burned-out apartment buildings which had



PHOTOS 1 & 2 ON PAGE 106



Photo 1 - 'Platen House'. Concrete uprights and foundation.





PHOTOS 3 & 4 ON PAGE 108



Photo 3 - 'Platen House'. House complete except for windows and interior finishing.



Photo 4 - 'Flex House'. Side view of detached porch for house.



not been damaged by high-explosive bombs. Most of these types were found only in HAMBURG, but wooden barracks were also found in both HANOVER and AUGSBURG.

c. Construction was carried out by Party organizations, by city administrations, and by individual effort.

11. Sources of Labor. The labor used for repair and reconstruction came primarily from the building industry. The craft leader in each precinct knew the labor available from the building companies assigned to that precinct. If more labor was needed, he could request it from the city leader. The city leader could secure outside aid from the Party district leader of the craft, and, if sufficient help was not available within the Party district, that leader could secure it from the national leader. Occasions were reported when skilled help had been sent from great distances under this plan.

## XIII. UNEXPLODED BOMBS

1. Introduction. Responsibility for the disposition of unexploded bombs rested with the German air force, and was delegated to the air force district commander. His duties were, however, administrative, and the actual disposition of the bombs was accomplished by bomb-disposal units (Sprengkommandos) consisting of an officer and eight to ten trained bomb-disposal soldiers (Feuerwerker). There were usually four or five such units in each air force district. In the interests of safety and the preservation of unexploded bombs for purposes of research and salvage, the removing or handling of unexploded bombs by anyone other than members of the bomb-disposal service was expressly prohibited. It is to be noted, however, that with a view to the elimination of useless demands on bomb-disposal units and unnecessary cordoning of areas, especially in establishments of military importance and in vital traffic arteries, it was decreed that selected members of local civilian defense personnel, police, factory air-raid-protection service, and installations of special administrations should be trained in the reconnaissance and recognition of unexploded bombs of all types. This training enabled such civilian defense personnel to dispose of enemy incendiary missiles (stick, liquid and phosphorous bombs, and incendiary leaves, bags, and bottles). The removal, however, of unexploded high-explosive bombs and mines, as well as flares and flash bombs remained the duty of the air force bomb-disposal unit.

2. Operation.

a. Detection and Report. The discovery of an unexploded bomb, or of a hole in which it was reasonable to assume a bomb was lodged, was reported by the finder to the nearest police headquarters, usually that of a precinct (Revier). The existence of the bomb was then confirmed by a trained local police officer or warden who directed precautionary measures and reported to his headquarters. The report was then forwarded to the local air-raid-protection leader and by him to the bomb-disposal officer. This report contained a description of the bomb, its location, and sufficient information of its surroundings to indicate whether its prompt removal was imperative. Bombs lying near a vulnerable or important location; such as a power station, railroad, main road, arsenal, essential industry and the like, were handled as rapidly as was practicable. Other bombs, lying in relatively unimportant areas awaited later disposition, not earlier than three days.

b. Precautionary Measures. Prior to the arrival of the bomb-disposal soldier, wardens or police took precautionary measures by surrounding the bomb with a safety area from which all people were evacuated and traffic prohibited. In the event that the bomb could not be removed promptly, or was so situated that immediate removal was not required, it was covered with bundles of brush, turf, straw, or sand bags, and warning signs were posted around the prescribed zone. The limits of the safety areas to be roped off around unexploded bombs were prescribed as



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follows (all equivalents to metric figures are approximate);

- (1) Bombs lying free, up to 440 lbs (200 kilograms) - 1061 yards (1,000 meters)
- (2) Bombs lying free, over 440 lbs - 2,122 yards (2,000 meters).
- (3) Bombs buried deeper than 39 inches (one meter) - 285 yards (250 meters).
- (4) Bombs buried deeper than 39 inches with covering of 39 inches of earth - 106 yards (100 meters).
- (5) After seven days - 38 yards (35 meters)
- (6) When given protection from splinters:
  - (a) First seven days - 38 yards (35 meters).
  - (b) After seven days - 16 yards (15 meters).
- (7) The above safety distances were to be increased if that could be done without hindering industry and traffic installations, agricultural needs, or those who lived nearby. If there was natural protection from splinters in the area (such as houses, woods, or embankments) the safety distance could be decreased. The final determination of the proper safety distance was made by the bomb-disposal soldier.

c. Removal and Disposition. The actual defusing or neutralizing of the bomb was performed only by the bomb-disposal squad, consisting of the bomb-disposal officer or bomb-disposal soldier and a force of workers to perform the labor of freeing the bomb and handling it after its neutralization. These workers, usually six, were volunteers from nearby concentration camps and, for satisfactory service in such work, they were permitted certain privileges, such as, in some cases, release from internment. Bombs which were found in places where recovery would have been difficult and where detonation in place would have occasioned no harmful results were occasionally exploded where they lay. If the removal of a bomb was abandoned because of its position in marshy ground, quicksand, or the like, the location was roped off and posted.

#### XIV. WAR DAMAGE CLAIMS

1. National Policy. The national government assumed the responsibility for the restoration of all war damage suffered by its nationals and the care and support of persons injured by enemy action. The basis therefor is found in two basic decrees issued in September, 1939, and in a series of amending orders, particularly those of November, 1940. In assuming this responsibility the government did not establish any insurance scheme for property damage such as was set up in GREAT BRITAIN or the UNITED STATES, but undertook to accept the full cost, although no budgetary provision was made for meeting the costs thus assumed.

2. Types of damage covered were classified into three groups:

a. Personal injury damage, for which the injured, or relatives dependent upon him for support, received maintenance and care.

b. Damage to property, which was compensated for in accordance with regulations laid down in the war damage decrees.

c. Compensation for loss of profit or use.

3. Cases covered. Personal Injury Claims

a. Claims for personal injury or death could be made, if such were caused by direct action of armed forces; by the action of German forces or government to meet a threatened or imminent enemy action; by the action of enemy forces directed against GERMANY; by retreat or flight from the enemy when such flight became necessary because of the threat to life; or, if such flight were ordered by a competent German official; or, if it were the result of sabotage which could be assumed to have been carried out with the connivance or at the instigation of the enemy.

b. A sharp line was drawn between injury which resulted from enemy action or from active steps to meet such action, and injury which resulted from the general war situation. For the latter, no payments were made. For example, injury caused by the blackout was specifically exempted from the provisions of the personal injury order, and, thus, no compensation was paid in such cases.

4. Payments Made.

a. For those persons who came within the scope of the decree, payments were made on the same basis as those to the army. Full costs of treatment, including hospitalization, physician's bills, laboratory expenses and other incidentals were paid, irrespective of the length of time the injured person was incapacitated. Cost of such things as artificial limbs, and even of "seeing eye" dogs was paid. Funeral



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expenses were also paid under stipulated conditions.

b. In addition to costs of treatment, a pension was paid until the injured person was able to work again. This pension was based on his former income and on the degree of severity of the injury. In the case of the death of a married man, if he were the family's chief support, a pension was paid to the widow. Additional payments were also made for orphans, varying in amounts in accordance with the age of the children.

c. If a man were unable to work at his old job, he was trained in a new one, and paid a pension while learning. If his income at his new job were considerably below his former income, he was still paid a pension in a reduced amount as compensation for loss of earning power.

### 5. Organization.

a. The office at which claims were first filed was an office of the city administration, and was normally the office that handled affairs for soldiers and soldiers' families. In large cities, it might maintain several branches, while in smaller places, the claim would be filed at the central office. Normally, the city office verified the facts of the case, determined whether the claimant were eligible, and, if so, started payments which continued until such time as the case was taken over by the next higher authority.

b. That was a national government office called the welfare office (Versorgungsamt). One such office normally served a large city and surrounding area. Several of these offices were then grouped under a higher welfare office, of which there were 12 or 13 for the entire country under the direction of the National Labor Ministry. Appeals, however, went from the welfare office to the higher welfare office and finally to the national administrative court.

6. Funds. Funds used were national government funds, although they did not always come from the same source. To meet bills for treatment, funds were usually secured from the national sickness insurance benefit funds which were raised by payroll deductions from persons employed throughout the country. For pensions, funds were either paid to the city administration directly by the Finance Ministry or by the welfare office.

### Material Damage Claims

7. Cases Covered. Claims could be made for damage to movable or immovable objects, provided such damage was caused by acts of war, either of German or opposing troops; by damage, destruction, or looting in territory occupied by the enemy, except when the damage had nothing to do with war measures; by evacuation or carrying off of belongings from a territory occupied, or in danger of occupation, by the enemy; by flight,

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if it could not be avoided on account of great danger; or by the scuttling of a ship to avoid its capture by the enemy.

8. Extent of Payments. The rule followed for assessment of damage was the cost of repair or replacement. The normal practice was to pay claims on presentation of actual bills for work already completed, although, under some circumstances, payments in advance were made in order to get repairs started. Claims could be filed for completely destroyed buildings, but repair and settlement of such claims was usually to be postponed until after the war.

## 9. Organization.

a. The plan of organization for handling war damage claims involved offices at three levels. The lowest level was normally under the authority of the mayor. In the case of smaller cities, the second level was a regional office with authority over several cities, but in the case of a large city like HAMBURG, it was a higher office for the HAMBURG region and was actually the upper branch of the local war damage office. The top level was the national war damage office.

b. The office at the lowest level handled all claims below \$40,000 (RM 100,000) except those involving a municipality. Cases not handled by the lowest authority were administered by the next higher office, as were appeals from the lowest authority. A variation from this pattern was noted in AUGSBURG, where the mayor confined the activities of the lowest authority to claims of less than \$2,000 (RM 5,000), except when its actions were approved by the city legal authority. In contrast to that situation, the war damage office in HANOVER, which was headed by a very able director, appeared to enjoy almost complete independence of action.

c. A separate office for handling all claims involving sea shipping was set up with headquarters at HAMBURG.

## 10. Method of Handling Claims.

a. Claims could be settled either by agreement or by decision of the war damage office. If the war damage office and the claimant agreed on the amount to be paid and the representative of the National Finance Ministry approved the settlement, an agreement was signed, and from this there was no appeal. However, if such an agreement could not be reached, the war damage office decided the amount to be paid and issued its decision. This decision could be appealed to higher authority either by the claimant or the representative of the National Finance Ministry.

b. Normally, before repair work was undertaken, it was approved by the local war damage claims office acting in conjunction with the local building police. After the work was completed, it was inspected



by the building police and the claims were settled, if the cost of the work was in accord with the estimates originally approved.

c. In settling claims for furniture and household effects destroyed, the practice was to make the payment when the householder could secure the necessary replacements. However, owing to the large number of claims, a standard table of values was set up in HAMBURG, and a householder could settle on the basis of that table which set values on the basis of householder's income, number of rooms in his apartment, and the number of persons in his family. This table does not appear to have been used elsewhere.

11. Limitations on Payments. The decrees affecting material war damage claims cautioned the administering authorities that, while claims were to be recognized to the full extent of the loss, payments should be made only when they were in the national interest. That policy gave the authorities a logical basis for postponing payments, if it was desirable to do so from the point of view of the national economy. In actual practice, however, the greatest brake on damage payments was the policy of paying only for actual repair or replacement, which became more and more the customary rule as the war continued. The shortage of materials thus acted to restrict the number of claims settled.

#### Loss of Profit.

12. The third form of war damage loss which the German government undertook to safeguard its nationals against was the loss of profit or use, due to the destruction of a material object, such as a building or the raw materials or products of manufacture. Settlements were hedged about with restrictions designed to prevent payments which were not deserved or which were not necessary to prevent economic distress to the individual or the business, and normally it was not possible for a large or profitable business to secure much compensation under these decrees. The real benefactor was usually the small business man whose shop had been destroyed by bombing.

13. Under the terms of the decrees, he could secure payments representing the difference between what his earnings actually had been and what his anticipated earnings would have been had the bombing not occurred. The base year for comparison was normally the year preceding that in which the bombing took place, but it could be any other satisfactory year. In HANOVER, for example, 1939 was used for the basis of comparison. One important application of this law concerned landlords. Owners of destroyed dwelling places were paid the rent on the building or apartments under the loss of profit provisions, and they were required to continue paying taxes as if the building were still in existence. If a man owned his own house and it were destroyed, he was paid a rent on it in accordance with the normal rentals paid for similar establishments.

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14. Administration. The loss of profit decrees were administered by the same offices that handled material war damage claims.



## XV. FACTORY AIR-RAID PROTECTION

1. a. Realization of the future need of air-raid protection in German factories vital to the nation in the event of war was demonstrated by the fact that many key industries had voluntarily planned and some had already established, air-raid-protection organizations some time before GERMANY went to war. They had held practice drills, and even constructed some air-raid shelters as early as 1934.

b. Comments based upon air-raid-protection plans and ideas developed at that time by industries were published by the National Ministry for Industry. The early planning undoubtedly accounted for the speed with which factory management was able to effect well organized protection programs as soon as war started, programs which required little change or adjustment throughout the war period.

c. Provisions for industrial air-raid protection were covered by the German basic law and a number of its executive decrees. (See Section III of this report.)

2. Under the air-raid-protection law, the National Industries Group (Reichsgruppe Industrie) was responsible for the planning, supervision and inspection of factory air-raid-protection measures. Possessing ministerial authority, it issued a complete set of instruction booklets describing in detail the manner in which each category of factory air-raid protection would be organized, trained and maintained at factory expense. This series of instruction booklets, entitled "Die Werkluftschutz" sets forth factory air-raid-protection plans in detail, manning tables, list of needed equipment, plans for control, and general operating policy.

### 3. Plan of Organization.

a. For the supervision of war production as well as air-raid-protection measures, the National Industries Group divided GERMANY into industrial divisions (Bereichtstellen), somewhat similar physically to the Party districts (Gaue), but not always coterminous with them. In each such industrial division, an air-raid-protection leader was designated. The industrial divisions were subdivided into districts or regions (Bezirkstellen) each with an appointed leader. This flare for echeloned organization was developed to the extent that in some large cities the division and the district office would control the same area yet maintain the proper chain of command. The larger of such areas would be further subdivided so that finally the lowest direct representative of the National Industries Group would have under his immediate control only as many plants as he could efficiently supervise. The number would vary from three or four large plants plus a dozen small ones, to 50 or 60 medium-sized factories plus the small ones located in the same area.

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b. The air-raid-protection leader was the representative at the plant level of the National Industries Group, and he had authority to inspect the efficiency of the plant-protection organization and to require management to comply with measures prescribed by the Ministry for Industry. In cases of dispute, the leader at the higher level (Bereichtsstelle) usually possessed sufficient political authority to enforce protection measures, make changes in factory plans, or grant exceptions.

### 4. Basic Organization.

a. The basic air-raid-protection organization for a small factory employing no more than 500 persons was a section of specialized groups, called readiness units (Einsatzgruppen). These consisted of groups of squads, each consisting of eight men and one leader, and each having a distinctive armband identifying their particular specialty. The squads of a typical section were as follows:

- (1) Fire watchers (Brandwachen).
- (2) Fire fighters (Feuerwehrtrupps).
  - (a) Heavy fire engine crew.
  - (b) Light auxiliary pumper crew.
  - (c) Bucket and sand hand fighters.
- (3) Spotters or observers (Beobachter).
- (4) Order guards (Ordner). (Their duties were to act as guards, preserve order, and prevent panic.)
- (5) Plant guards (Werkwachttrupps).
- (6) Messengers (Melder).
- (7) Gas-detection squads (Gasspürer).
- (8) Decontamination squads (Entgiftungstrupps).
- (9) Medical and first-aid squads (Sanitätstrupps).
- (10) Veterinary squads (Veterinärdiensttrupps).
- (11) Working crews (Arbeitstrupps).

Some adjustments were required, depending upon the nature and size of the facility. For example, unless animals were used in the factory, the veterinary squad was omitted, and usually the plant guards and the order police were combined to save manpower. In most cases the worker squads



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or debris removal squads were omitted and their work was handled in a manner that will be described later. Further, each of the above squads consisted of eight men and one leader except that the number of observers and fire watchers was flexible and only enough were used to cover properly the observation of the area for which they were responsible. The number for each section of that sort averaged three or four instead of eight.

b. The above organization contained the basic unit for air-raid protection and it was controlled by a headquarters manned by a factory air-raid-protection leader and his staff, consisting of deputies, telephone operators, and messengers. During an air raid the chief engineer, the chief electrician, the chief of plumbers, and similar technicians were required to be present in the control center as part of the air-raid-protection leader's staff.

c. The control center, located in an air-raid shelter in the center of the area of responsibility, was connected by telephone with the fire watching stations, the factory fire department headquarters, the headquarters of each department in the factory and, in case it was the central control station for the factory, it was connected by direct line with the warning central and control center of the nearest city, and, in the case of important factories, with anti-aircraft (Flak) headquarters.

d. The fire watchers were given stations in specially constructed bullet-shape pill boxes of reinforced concrete, having a direct telephone connection with the leader's control center. Each individual was properly equipped according to his specialty, and all had gas masks, helmets, armbands, and special insignia or badges, furnished at factory expense.

e. If a large factory were concerned, then the organization described above became an individual section of the factory air-raid-protection organization, and the control center described was known as factory air-raid protection section No.1 (Werkluftschutzabschnitt 1, Abschnitt Befehlsstelle). It retained all responsibility for its area except that warning service intelligence from outside sources was transferred to the main factory air-raid-protection control center. In that case the specialists on the staff, such as the chief engineer, and the chief electrician, were on duty at the main control center. In the case of multiple sections, the heavy fire-fighting equipment was organized as a central factory fire department, but the section leader was still required to fight incipient fires with his light squads.

f. It was further prescribed for still larger factories, that in the event the sections (Abschnitte) numbered more than seven, other echelons were to be created and called groups (Gruppen). In other words, instead of having eight sections directly under the central control station, they would organize two groups of four sections each, being



identified as Group "A" and Group "B" (see chart on page 121 ). Group "A" (clearing squads) was composed mainly of unskilled labor formed into units of 10 to 30 men under a leader, to be used in clearance work preparatory to the employment of skilled labor. Group "B" (Auxiliary squads) was composed primarily of skilled and unskilled building labor and usually numbered 10% of the total employees of the facility. It was believed by the National Industries Group that decentralization in large factories produced more efficient protection in emergencies. The chart on page , describes a flexible type of organization designed to fit any size of factory by using it in toto or extracting therefrom the organization to accommodate one of lesser size.

## 5. Personnel.

a. The personnel that made up the squads and sections previously described above were recruited from the factory workers, no one being exempt from service with these readiness groups. The factory air-raid-protection leader had full authority, with the support of the local police president, to draft any employee and to use even foreign workers on a voluntary basis. Each section leader was required to organize sufficient groups so that they could rotate on duty by roster. Where night shifts were employed that posed no problem. Many plants, however, operated only one long day shift, usually 10 to 12 hours, hence for protection during the night, the readiness troops had to take their turn at night alert duty. Barracks or sleeping places were provided for those not required to be on actual watch duties, but they were required to be in readiness for instant call in case of an air-raid attack.

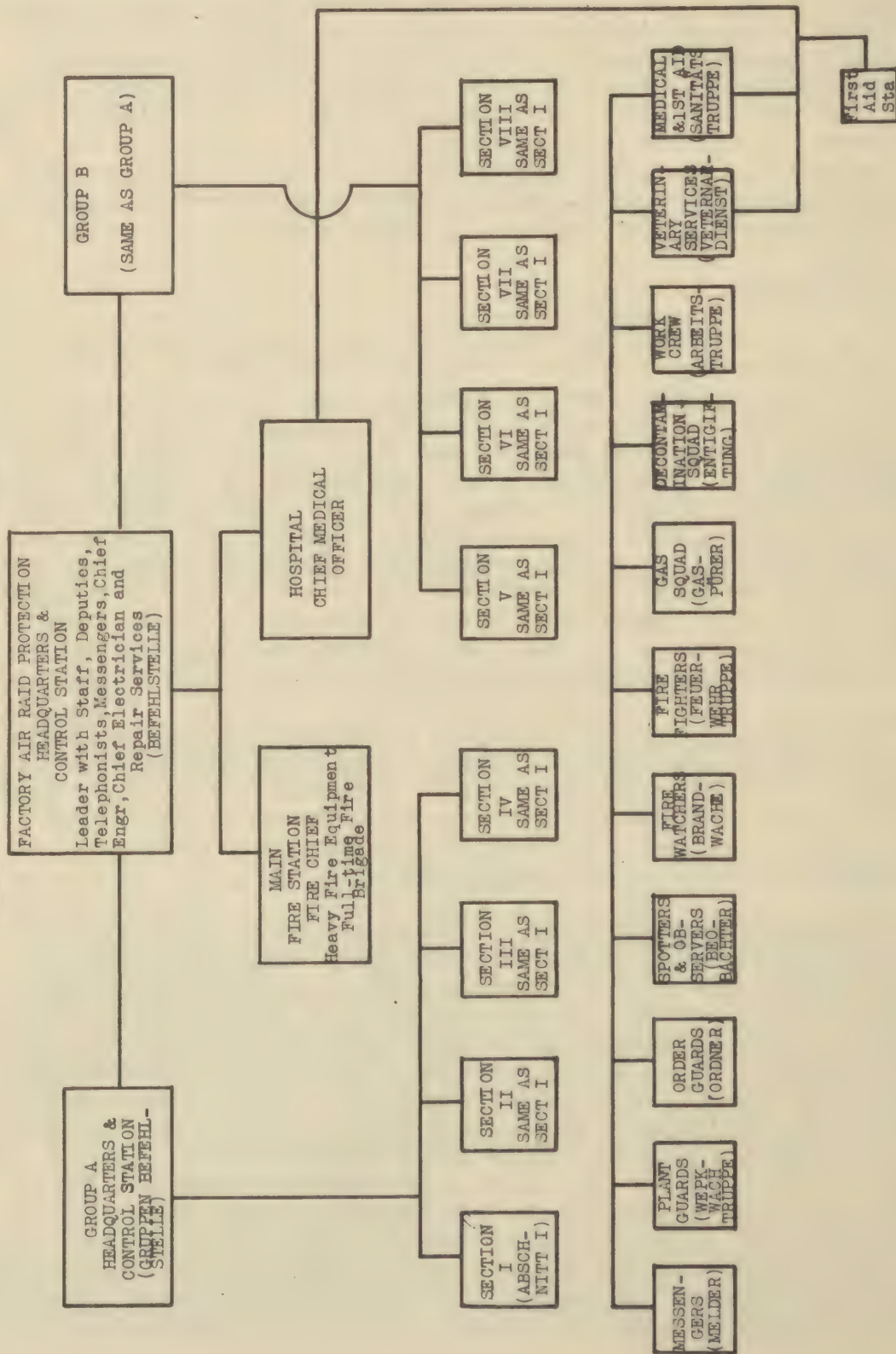
b. The prescribed pay for this extra duty ranged from \$0.80 (RM 2.00) to \$1.40 (RM 3.50) and three to four hours granted on the following work day for additional rest. There was further limitations as to the number of times each month certain classes and age groups could be forced to stand alert duty, for in many cases women employees were required to serve in all capacities.

6. Warning System and Control. The main control center for the factory air-raid-protection service had direct telephone connections with the control center of the city in which it was located and with the local warning central. In addition to those two sources, it also received information of enemy air threats by radio from military broadcasting stations. Every effort was made to give early notice to essential industries in view of the fact that they were likely targets. In an effort to minimize stoppage of war production during air raids, industries which were equipped to receive and disseminate 12 and 6 minute warnings (see paragraph 4 (g), Section IV, "Air-Raid Warning") did not stop work upon the sounding of the public siren alarms, but continued until the receipt of the six minute warning. That system enabled management to keep workers on the job until only enough time remained to evacuate them to shelters. In factories of lesser importance, warnings were given by the control center of the city in which the factory was located.



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

## ORGANIZATION CHART FACTORY AIR RAID PROTECTION (WERKLUTTSCHUTZ)



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This matter was usually decided by conference between the district representative of the National Industries Group and the police president of the city.

### 7. Air-Raid Shelters and Shelter Policy.

a. As was indicated in the opening paragraphs of this section, the construction of shelters for factories was started before the war. Almost invariably, early shelters consisted of reinforced basements and splinter-proof concrete "tube" bunkers in the plant yard. Early raids proved the inadequacy of these types of shelters, and thicker, reinforced ceilings were provided throughout the war on a progressive basis, along with splinter-proof shelters which were constructed in many places some distance from the buildings. The managements of some factories were more far-sighted and progressive than others and constructed special air-raid shelters of the German multiple-story type, called "Bunkern", with reinforced roof decks in some instances as thick as 12 feet. In some factories air-raid shelter construction was still in progress at the end of the war, and several large factories were building great underground shelter systems blasted out of solid rock and consisting of tunnel networks 50 feet underground.

b. Initially it was prescribed that the readiness troops, especially the fire watchers, fire fighters, and other emergency troops, would man their posts on duty throughout a raid. The requirement was never withdrawn, although in individual factories management relaxed the policy and permitted air-raid-protection workers to remain in shelters until after a raid. In general, it was a definite policy throughout all German industry to give their employees the best possible shelter protection not only to prevent loss of life but to reduce absenteeism.

8. Training. Training for factory air-raid-protection organizations was supervised by representatives of the National Industries Group. Schools were set up by them in the industrial districts for factory air-raid-protection leaders and key personnel who, in turn, conducted schools within their own factories for the training of the rank and file in each specialty. Much attention was paid to gas protection, since most factory managers expected gas attacks at any time. Schools in all air-raid-protection techniques were held continually. The constant demands of the army drew heavily on factory employees causing a large turnover in the personnel of the readiness troops. Furthermore, refresher courses were required for old employees. The German Red Cross conducted training for first-aid groups and the city fire department had charge of the training for factory fire-fighting forces.

9. Mutual Aid. Mutual aid was well organized and extensively used, although not between factories nor by special arrangement made between factory managers. It applied principally to the factory fire-fighting forces which were officially auxiliary units of the city fire department, and subject to the call of the police president.



10. Repairs and Post-Raid Restoration. Specific work troops (Groups "A" and "B") were prescribed for debris removal, emergency repairs, and to accomplish all work necessary to restore production in a damaged area of a plant. Deviations from this plan were numerous and will be commented upon in the paragraph "Operations" to follow. These special "A" and "B" troops, being in addition to all other organizations within the factory for similar work, were to be made available on call for work outside the factory as designated by police presidents or other higher authority. This was part of a system for mutual aid to other establishments, and it is noteworthy to mention that the plan existed largely on paper as the most important factories secured official exemption from that requirement.

11. Operations. In the actual operation of factory air-raid protection throughout the war period, many variations seemed at first glance to be wide departures from the plan, but on closer scrutiny most were found to be the result of the exercise of good judgment under varying conditions, only a few being actual evasions by managers with attitudes ranging from indifference to unscrupulousness. Some of the typical deviations were as follows.

a. A full-time paid "professional" air-raid-protection force of a strength ranging from 1% to 2% of the total number of employees, augmented by auxiliary readiness troops in numbers equalling about 20% of the total number of employees. This plan reduced the number of people to be trained and although it was more expensive, it appealed to many managers as a more efficient plan than the one prescribed.

b. A full-time force with little attention paid to auxiliaries. Some managers had little faith in the efficiency of part-time, air-raid-protection workers, and placed the entire protection responsibility on a force organized along military lines, intensively trained in all phases of air-raid protection, and held in constant readiness in barracks on the premises.

c. Some leaders specialized in fire fighting only, paying slight attention to organization for gas protection, plant police, and the stereotyped organization set up by the National Industries Group.

d. As a substitute for readiness troops organized in squads of eight, with each squad trained in a separate activity, many factories organized factory air-raid-protection troops (Werkluftschutztruppen) consisting of 20 to 30 individuals, all well trained in the techniques of air-raid protection. Thus, one or more fully contained units could be dispatched to incidents as needed.

e. In post-raid repair the majority of plants delegated the entire responsibility of restoration of production to the manager of the department in which the incident occurred. Quite frequently formal organization was neglected or omitted. After a raid, employees of an

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undamaged department would return to productive work while employees of a damaged department would work at restoration until production could again be resumed.

f. The shelter policy prescribed in the plan was almost universally ignored. Deaths of fire watchers in splinter-proof shelters caused by the blast of exploding bombs would result in uncontrolled desertion of posts. It became quite general in the majority of factories to evacuate the entire personnel to the most secure, deep shelter during an actual raid. Those specified for duty would rush to their posts during a lull and all would pursue their prescribed duties at the sounding of the "Pre-All-Clear" signal.

g. Some factory managers secured official approval to deviate from the requirements of mutual aid and submission to the authority of the local police president. As a result, their factories did not extend aid to the local fire department and conducted their own protection independently.

h. The control of the police presidents and their air-raid-protection police over factory air-raid protection varied with the personality of the local police president and with that of the National Industries Group representative. In some areas the most complete police supervision was exercised over factories, while in others the authority of the local representative of the National Industries Group prevailed. In the main, however, there was close and beneficial cooperation between these two branches of authority.

i. The district representative of the National Industries Group, the chief of the local air-raid-protection police, and the factory air-raid-protection leader worked closely together to provide effective protection for the factory, and the result was so productive that most factory forces were able to lend aid to the local communities during heavy raids in the area. Although local air-raid-protection police of the appropriate precinct were given inspection responsibility of the factory, it was not considered a burden to management nor was it resented. On the contrary, it was recognized as being beneficial and the assistance of the police was utilized for training purposes and in emergencies.

## 12. Management Interest.

a. Factory air-raid protection as organized and operated by German plant management was efficient, business-like and practical. No expense was spared to accomplish a practical purpose as it was anticipated at an early date that a sound organization, well trained and equipped, would be required under war conditions. It was also recognized that maintenance of production could be effected only by the most complete protection of personnel. The moment it was determined that an air-raid shelter was inadequate under the constantly increasing size of bombs, new and better shelters would be built. It was often stated



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that workers complained that they were better protected at their place of employment than were their families and loved ones at home. Although workers might complain, they would be sure to come to work, and many instances were found where factory workers habitually came to work from one to two hours early when early morning raids were commonly expected. Shelter construction was important in its influence on the morale of workers and absenteeism. When a direct hit would penetrate a certain type of shelter, employees would refuse to re-enter similar shelters. If shelters were not considered adequate by the employees, they would evacuate the factory grounds upon the first alarm and seek shelter in the city shelters or wooded areas. On the other hand, where factory shelters were entirely adequate, workers were willing to stay, and their morale remained high.

b. Preference of the best shelters was given to German employees, foreign workers frequently being assigned secondary shelters. It was evident that the source of labor determined the shelter policy where shelters were inadequate for all. For instance, in some factories concentration camp prisoners were refused shelter of any sort, and they were herded into fields or woods and guarded by their SS guards protected in slit trenches which surrounded them. If heavy casualties resulted among prisoners from direct hits, they would be replaced with others.

c. Splinter-proof baffles were placed around machine tools to lessen the damage from direct hits.

## XVI. EXTENDED SELF-PROTECTION

1. Purpose. The extended self-protection service (Erweiterter Selbstschutz) was established by the basic air-raid-protection law. The service was to cover those commercial installations not large enough nor sufficiently important to the war effort to be placed under the factory air-raid-protection service; buildings which served as gathering places for large numbers of persons engaged in cultural, religious, educational and recreational pursuits; buildings or groups of buildings which comprised an institution, such as a hospital, home for aged, and similar organizations. The service was developed to the extent appropriate to each individual case and was based principally on the organization of the self-protection service. It constituted a separate unit in the local air-raid-protection organization but was neither so independent nor so self-contained as was a unit of the factory air-raid-protection service.

### 2. Participating Enterprises.

a. The specific types of enterprises required to participate in the extended self-protection service were:

- Department stores
- Business and office buildings
- Larger recreation and entertainment centers
- Theaters (all types)
- Larger hotels
- Hospitals and nursing homes
- Homes for the aged and similar institutions
- Monasteries and churches
- Museums and Libraries
- Prisons
- Schools and Universities
- Circuses, zoos, and similar establishments
- Stock yards and food supply establishments

b. Whenever more than one enterprise occupied a building, all were formed into one extended self-protection unit. This system was particularly applicable in office buildings. It was also noted that adjacent buildings were very often grouped into one unit to simplify organization and control.

c. While decrees specified the types of enterprises required to establish the extended self-protection service, evidence proved that invariably the local police president designated the enterprises which had to install this service. The eighth amendment (dated March 1943) to the air-raid-protection law of 1935 stated that the air-raid-protection police were responsible only for the appointment of air-raid-protection leaders (Luftschutzleiter) in single and grouped enterprises, but it was definitely established that they often appointed the entire



personnel of the service in an enterprise, even specifying at times the particular duty to be performed by each individual. Service by individuals was compulsory, and exemptions were made only when a person was actively engaged in civilian defense duties elsewhere or was physically or mentally unable to perform the required duties.

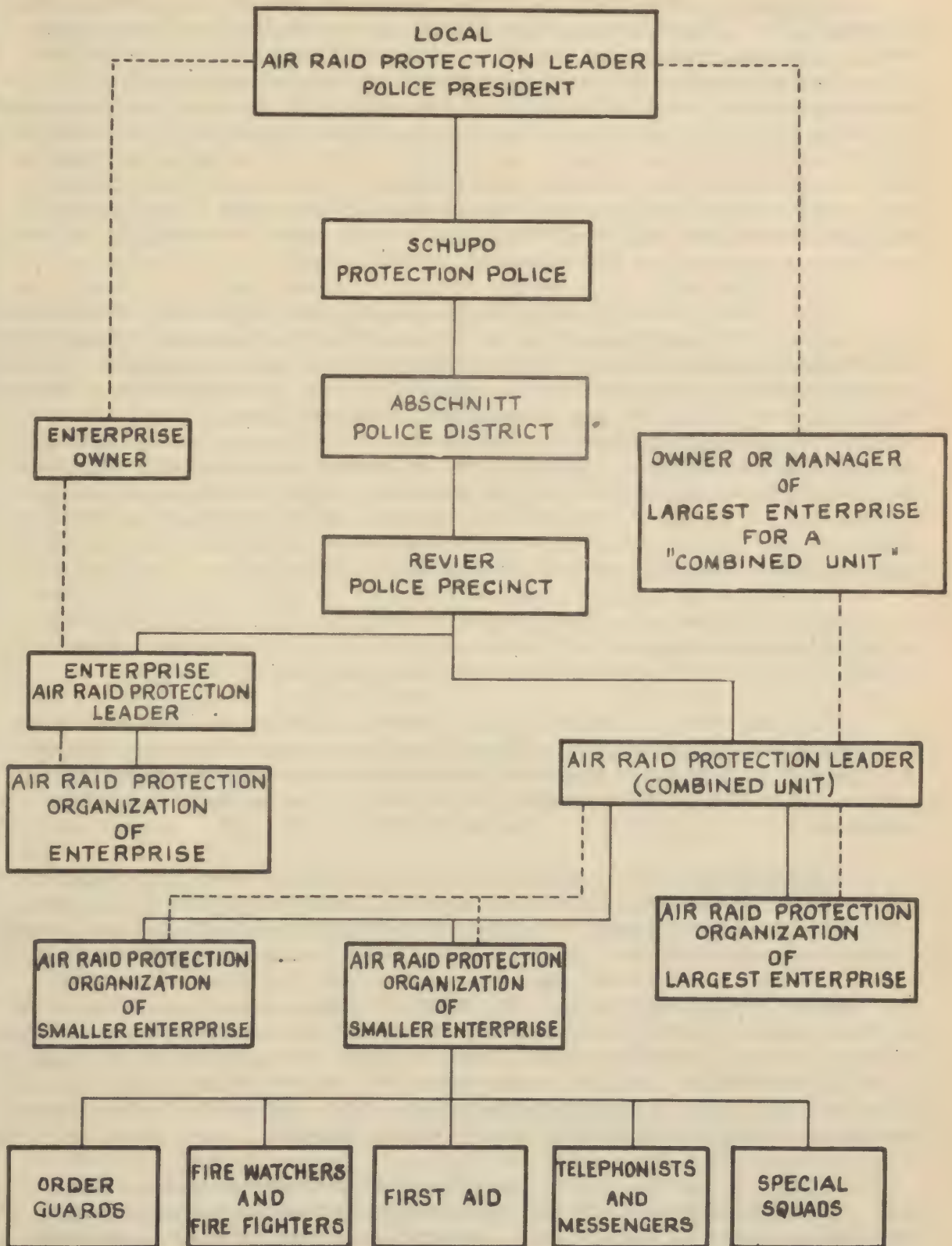
3. Organizations. The organization, control, and chain of command of the extended self-protection service are depicted in the chart on page 128. The enterprise air-raid-protection leader had the entire responsibility for the organization and development of the service. Generally, he selected the personnel and assigned to them particular duties on the basis of mental and physical ability. The leader conducted the operations of the groups from the control room which was usually established in a reinforced room in a basement. The organization, equipment and arrangement of these control rooms were of the simplest type possible. They consisted of the leader, several telephonists and messengers, a plan of the enterprise with locations of all teams, and a method (bells or klaxons) of sounding an alarm throughout the enterprises. All incidents taking place within the enterprise were reported to this control room either by a house phone system or messengers, and necessary movements of teams were ordered by the leader. The leader had a blueprint of the enterprise and surrounding area and was required to be familiar with all sections of it. A copy of this plan and a list of all air-raid-protection personnel were filed in the police precinct headquarters. There was a deliberate attempt on the part of the air-raid-protection leaders to establish only essential measures, so that over-organization would not be a detriment to proper functioning of the service.

a. Order Guards. These men were trained to guide persons to shelter areas, to preserve order, to remove valuables, to prevent thefts and to perform other related duties. In some instances they acted as messengers during the raids.

b. Fire Watchers and Fire Fighters. Personnel of this group was trained in the identification of all kinds of bombs and the methods of extinguishing incendiary bombs, with particular emphasis on the phosphorous type. Definite posts were established to which these teams reported immediately upon the sounding of an air-raid alarm.

c. First Aid. These groups were, in the main, composed of women. In addition to first-aid training, members were given instructions in gas identification and decontamination. Training in the latter was necessary for women when the manpower situation became critical. First-aid stations were located at advantageous positions throughout the buildings and in the shelter areas.

d. Special Squads. These teams varied according to the enterprise. They were usually established for minor repair and clearance, or as veterinary squads (in a circus, zoo, or livestock establishment), and when manpower was available, there were trained in decontamination.



----- CHAIN OF RESPONSIBILITY  
———— CHAIN OF COMMAND



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4. Training. The training of all personnel was the responsibility of either the air-raid-protection police or the National Air-Raid-Protection League. Generally, the air-raid-protection police trained the enterprise air-raid-protection leaders (Betriebs Luftschutzleiter) who were responsible for the training of the readiness groups (Einsatzgruppen). All other personnel of the enterprise, who formed reserve groups (Bereitschafts Gruppen), were obliged to attend lectures on general air-raid-protection topics, which would enable them to perform air-raid-protection duties when called upon for emergency service. The latter training was always conducted by the National Air-Raid-Protection League, although sometimes supervised by the air-raid-protection police.

a. The courses of instruction covered the principles of first aid; methods of fighting all types of incendiary bombs; gas defense and decontamination; receiving, dispatching and carrying of messages; handling of small groups of the public; and evacuation and transportation. The length of the periods of basic instruction varied from four to 12 hours for the two groups of personnel and from 12 to 50 hours for the air-raid-protection leaders. In addition, refresher courses were compulsory for the air-raid-protection leaders whenever new types of bombs were encountered or whenever new problems confronted the air-raid-protection authorities. The air-raid-protection leaders were responsible for giving this refresher training to both groups of personnel.

b. Certain enterprises were required to have some of their personnel receive specialized training, such as evacuation and transportation, which all personnel in the hospitals had to undergo.

c. In order to check upon the state of training, the air-raid-protection police conducted drills without advising the enterprises of the time of occurrence. Wherever the air-raid-protection leader was anxious to develop a well trained organization, he arranged practical exercises.

5. Equipment. The supply of necessary equipment was the responsibility of the management of the enterprise. Generally, the equipment consisted of stirrup pumps or pump-tank extinguishers with jet and spray combination nozzles, hose, bags of sand, shovels, axes, crow-bars, gas masks, and first-aid materials. The number and quantity varied with the size of the enterprise and the degree to which management wished to provide protection for its property. In some instances the larger enterprises purchased portable motor pumpers capable of pumping 220 gallons of water per minute and also built tanks for reserve water supplies. Institutions, such as hospitals, were furnished equipment by the State, including portable pumpers and static water tanks.

6. Pay. No member of the extended self-protection service was paid for the performance of air-raid-protection duties during his or her regular hours of employment. However, when called upon to serve during a night watch or night air raid, each individual, except the

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air-raid-protection leader, was paid \$0.60 (RM 1.50) which later was raised to \$1.20 (RM 3.00) for duty on week-ends or holidays. The burden of this fee was placed upon the management of each enterprise. The total monthly pay for these duties was computed from the records of attendance entered in the watchbook (Wachbuch) maintained by each enterprise. Copies of these records had to be forwarded to the police precinct headquarters.

7. Shelters. The enterprises were required to provide shelter areas for employees and patrons. Usually the shelters were established in the basements which were reinforced and equipped with emergency exits. In most instances these basement shelters were inadequate protection against heavy bombing. This inadequacy was directly responsible for the adoption by the school systems of the policy of sending the children home or to nearby specially constructed shelters immediately upon receipt of warning of an air raid. Again it was noted that institutions, such as hospitals and homes for the aged, were given special consideration in that both bomb-resistant and splinter proof shelters were constructed in sufficient numbers and size to house all employees and patients. The State provided funds for the construction of the shelters in these institutions.

8. Warning. In the early part of the war, all enterprises, with the exception of institutions (including school systems), received their first warning of an air raid when the public sirens were sounded, which occurred usually 15 to 30 minutes before the actual raid materialized. The several institutions received a pre-warning by telephone from the warning central and then filtered it to their buildings by telephone or messengers. It was claimed that these pre-warnings were invariably received 30 minutes before the attack began. During the latter stages of the war, all of the enterprises without exception were using the wired-radio (Drahfunk) for the reception of advance information of enemy air raids. (See Section IV, paragraph 4 h (2)).

9. Mutual Aid. The early air-raid-protection directives stated that cooperation between various enterprises was a prime necessity in carrying out extended self-protection. There were indications of the operation of this mutual aid in the early part of the war when raids were light and sporadic. However, after raids became more intensive and more numerous, many enterprises refused to cooperate, mainly because of the selfish desire to protect their own properties. Whenever mutual aid was desired, the request had to be forwarded to the police precinct headquarters by which the enterprises would be ordered to move their teams to the location of the emergency. Toward the end of the war there was movement to combine the extended self-protection services and the factory air-raid-protection services, the purpose obviously being to bolster the weaker extended self-protection service and at the same time secure more mutual-aid benefits. No evidence was found of the successful completion of this plan.



## XVII. RAILROAD AIR-RAID PROTECTION

1. Organization of Railroads. The German National Railroads (Deutsche Reichsbahn) was a State organization controlled by the Ministry of Transportation. It was divided into a variable number of divisions, 26 before the war, 31 after the annexation of AUSTRIA, with other boundary revisions having been made as necessary. Each division had as its head a division president, who was responsible for every phase of its operations, and was accountable only to the ministry in BERLIN.

2. Organization of Railroad Air-Raid-Protection Service. An independent Railroad Air-Raid-Protection Service (Reichsbahnluftschutz) was established by directives dated as early as 1935, although intensive planning, training, and building were not accomplished until air attacks became a reality, in some cases as late as the spring of 1943. An official (Dezarnent 36) of each division, subordinated only to the division president, was appointed to carry out the air-raid-protection directives of the ministry. This individual, prior to the war, was in charge of the athletic and welfare programs of the division. As his air-raid-protection duties made increasingly greater demands on his time, they became his sole responsibility, the other tasks being allotted to subordinates. The full-time air-raid-protection staff was limited to the division leader and the messengers, telephone operators, and reporters in the control centers. Other personnel participated in air-raid-protection duties in addition to their regularly assigned jobs. Within each railroad division a subordinate air-raid-protection leader was designated for each headquarters or office building, railroad station, repair shop, roundhouse, yard, train, or other activity under the jurisdiction of the railroad, and he undertook the necessary protective measures within the area of his jurisdiction, subject always to revision by the division air-raid-protection leader.

3. Railroad Aircraft-Warning Service. The railroad aircraft-warning service (Eisenbahnflugmeld-und Warndienst - EFLU) was designed to allow all activities to be adequately forewarned of impending attacks, and yet to cause a minimum of telephone calls for any single individual, or agency. The chain of command in descending order was as follows:

a. The railroad divisional air-protection center (Eisenbahnluftschutzbezirkstelle - ELUZ), one per division, located in the division headquarters building, was directed by the division air-raid-protection leader, with a staff of assistants who worked three eight-hour shifts. The staff consisted of one or more plotters who kept a continuous check on the position of the enemy raiders; telephone operators who notified the lower echelons; messengers; and several department heads, such as bridge, operations, and repair, who advised on proper courses of action when necessary. Direct communications by telephone, wired-radio or radio between the division center and the aircraft-warning service of the air force and occasionally navy stations gave a progressive estimate of the air situation which was relayed to the lower echelons.



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b. The railroad aircraft-warning centers (Eisenbahn Warnzentralen - EWZ), two or more per division, were directed by sub-leaders and were located at large railroad terminals within the division. They were staffed by plotters, telephone girls, and messengers, and were the routine control centers from which orders were issued and directives disseminated, and to which reports of damage were sent for compilation before being forwarded to the division air-raid-protection center for action. They passed warnings to the next lower echelon (the relay stations) only.

c. The railroad aircraft-warning relay stations (Eisenbahnflugwarnmittlungen - EWV) were located at the largest terminals between two warning centers. They telephoned warnings received to each railroad activity in their zone which had communication facilities, such as stations, yards, sheds, roundhouses, crossing sheds, and works.

d. The railroad aircraft-warning stations (Eisenbahnflugwarnstellen - EWS) was the term applied to all railroad air-raid warning activities. Each took appropriate action with regard to blackout, dispersal or shelter of passengers, and warning of trains and wayfarers. Types of warnings were the same as those used to alert the general public. In addition, blue-and-yellow flags were used to warn trains in motion; stationary, they signified impending bomber attack; when waved, they indicated fighter-bomber attacks. Semaphore signals controlled by the station-master permitted or prohibited entry into stations.

4. Control. Final control of all activity during an air raid was vested in the division air-raid-protection leader. He could countermand whatever action subordinate leaders had thought appropriate to the situation. This prerogative did not extend through the chain of command. Beginning at the lowest level, the train conductor was the air-raid-protection leader of his train. In case of fighter attack (strafing) he ordered the passengers to disperse after the engineer had either halted the train in place or driven it into a station, cut, woods, or other protected place. The station-master was responsible for all activity between the entry signals to his station. Air-raid-protection leaders of larger stations or of yards and works similarly decided on the proper action. As stated previously, this action, which had to be reported to the division center through channels, could be modified or changed by the division air-raid-protection leader. Railroad ticket offices and other buildings not situated on the railroad right-of-way were under control of the local municipal air-raid-protection authorities.

## 5. Fire Services.

a. The normal peace-time facilities for dealing with catastrophes and maintenance were expanded considerably in anticipation of post-air-raid restoration and repair. Due to its specialized requirements in labor and materials the railroad system organized its own mutual-aid units, obtaining army and foreign worker reinforcements only for tasks



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which involved unskilled and manual labor.

b. Damage sustained during an air raid and an estimate of material and labor required to effect repairs were immediately reported through warning channels to the division control center. Here the course of action was decided by the officer in charge of the particular phase involved in the damage, such as bridge, locomotive or track repairs. First priority was given to the repair of a single track which would permit through traffic to be resumed, and to bridge reconstruction.

c. Specialized repair units were manned by shop workers and trained laborers. Rolling stock containing equipment was strategically placed on sidings so as to be available in a maximum of 15 minutes. Freight yard shunting locomotives were used to transport these aid trains (Hilfzüge) wherever required. A heavy traffic division would have, for example, five building construction trains for effecting repairs to stations, shops, and rail breaks; two bridge-repair trains; two trains for the repair of telephone and telegraph lines and exchanges (the railroad operated its own communications system); a train for effecting light repair work on strafed locomotives; and several squads of specialists which either worked independently or as supervisors or advisors to untrained gangs.

d. Army engineer troops and private contractors were occasionally used to help in bridge rebuilding; soldiers in removal of debris; and foreign workers formed a large percentage of the regular road gangs.

7. Anti-Aircraft Defense (Flak). Special flat cars with .50 caliber machine guns and 20-mm anti-aircraft cannon were assigned to the divisions which marshalled the greatest volume of traffic. High priority cross-country trains had multiple-mount cars, manned by military anti-aircraft personnel, which were assigned by the air force district commander. Railroad-owned "flak cars" were originally manned by the conductor and other personnel on the train, and later by police reserves.

XVIII. NATIONAL POST OFFICE (COMMUNICATIONS) AIR-RAID PROTECTION

1. Organization of German Communications System. The German Post Office Department (Deutsche Reichspost) controlled the postal, telegraph and telephone systems of the entire nation through the Ministry of Communications. The country was divided into approximately 40 communications district (Reichspostdirektionsbezirke), including the occupied countries. Each district had at its head a district president, who was accountable only to the ministry, and he, in turn, had subordinates in charge of each of the three services.

2. Organization of Communications System Air-Raid Protection (Reichspost Luftschutz). The president of each district was responsible for its air-raid protection. He appointed a full-time leader who carried out the directives of the Ministry of Communications, and was responsible for the training of employees, the procurement of equipment, and all other air-raid-protection measures. This leader had three or more full-time air-raid-protection deputies, each representing one of the three services or a large branch thereof. Other air-raid-protection leaders were appointed on an additional duty basis for each branch of the postal, telephone and telegraph services, as well as for warehouses, works, garages, and offices. In addition to those leaders, every individual employee was obliged to serve in some air-raid-protection capacity unless a physical disability or the demands of his office prevented. Fire watching, duty in the control center, and similar duties were prescribed by roster with employees being called upon once in every seven to 16 days. They were paid a clothing deterioration allowance for each night of duty and an additional reimbursement for food and transportation.

3. Training. Training of the air-raid-protection leaders of the several departments in the communications systems consisted of fire-fighting, gas defense, first aid and self-protection. Fire-fighting technique was taught by members of the municipal fire departments; first aid and gas drill by the Red Cross or a staff physician. The leaders themselves then trained their subordinates in all phases of air-raid-protection work, usually during evenings of duty. Inspectors and instructors traveled throughout the district to give refresher courses.

4. Equipment. Fire apparatus, both mobile and stationary, was dispersed at strategic locations within the district and was used wherever the district air-raid-protection leader directed. Telephone operators and all those on duty as air-raid-protection workers were furnished gas masks, other employees being required to purchase them on the open market. Gas mask microphones were available for the telephone operators on duty. The other usual equipment was on hand: shovels, hand pumps, sand boxes, first-aid kits, helmets, buckets, and miscellaneous hand tools.

5. Shelters. Reinforced basement rooms were provided for use as shelters. They were equipped with gas-proof doors, forced air ventilation, and one or more first-aid rooms. The control center was situated



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in one of these rooms, together with offices for key officials and an auxiliary telephone switch-board. In some cities the telephone exchanges were permanently installed in deep shelters or moved to special shelters in the suburbs.

6. Post-Raid Work. Due to the specialized nature of repair and reconstruction in the communications system, a series of mobile teams was formed from among the regular maintenance personnel of the organization. See Section IX, paragraph 13, for discussion of these teams.

### 7. Telephone and Telegraph Service.

a. A large percentage of the telephones in GERMANY are of the automatic dial type. As few of the automatic exchanges were damaged, that phase of reconstruction did not make large demands on labor or materials. In some instances, large areas were destroyed in which lines and installations were not replaced, so that telephone service was disrupted only for short periods of time in the remaining areas, owing to increased numbers of maintenance personnel being available.

b. Immediately upon hearing the alert, telephone operators in vulnerable exchanges proceeded to the basement shelters, in which auxiliary switch-boards were installed. Only priority traffic was permitted during and immediately after the attack.

c. The telegraph system used the same lines as did the telephone net, thus facilitating repairs.

8. Postal Service. All incoming mail was held at suburban offices if a city post office was damaged. The scattered populace called for its mail at the general delivery windows, and evacuees made known their new addresses. Mail that was uncalled for in four weeks was returned to the sender.

### 9. Remarks.

a. The telephone exchanges, whether manual or automatic, that were housed in bomb-resistant shelters continued service uninterruptedly during raids.

b. Mobile teams of skilled workers for mutual aid proved their value throughout the war.

XIX. HARBOR AIR-RAID PROTECTION AND PORT SECURITY

1. It was apparent that the Germans realized early the importance of providing protection for waterway facilities and surrounding areas, since provisions specifically dealing with such protection were in the basic air-raid-protection law, and executive decrees relating thereto.

2. The typical crowding and interlacing of facilities and installations along a harbor waterfront usually cause much confusion in delineation of authority responsibility, and in placing structures and areas into "water", "shore", and "waterfront" categories. To provide police supervision over harbor areas, the Germans established the water-protection police (Wasserschutzpolizei). This organization was specially trained and equipped to handle problems peculiar to waterfront areas. It was attached to, and controlled by, the regular police organization and when Himmler consolidated and took over the police forces of GERMANY it came under his direct control.

3. Basic Organization.

a. Under the German plan of organization the entire waterfront and harbor area (land and water) of a port city was usually established as a separate police district. The senior water police officer of the area became the commander of the district and was responsible for carrying out all regular police duties, including air-raid-protection regulations.

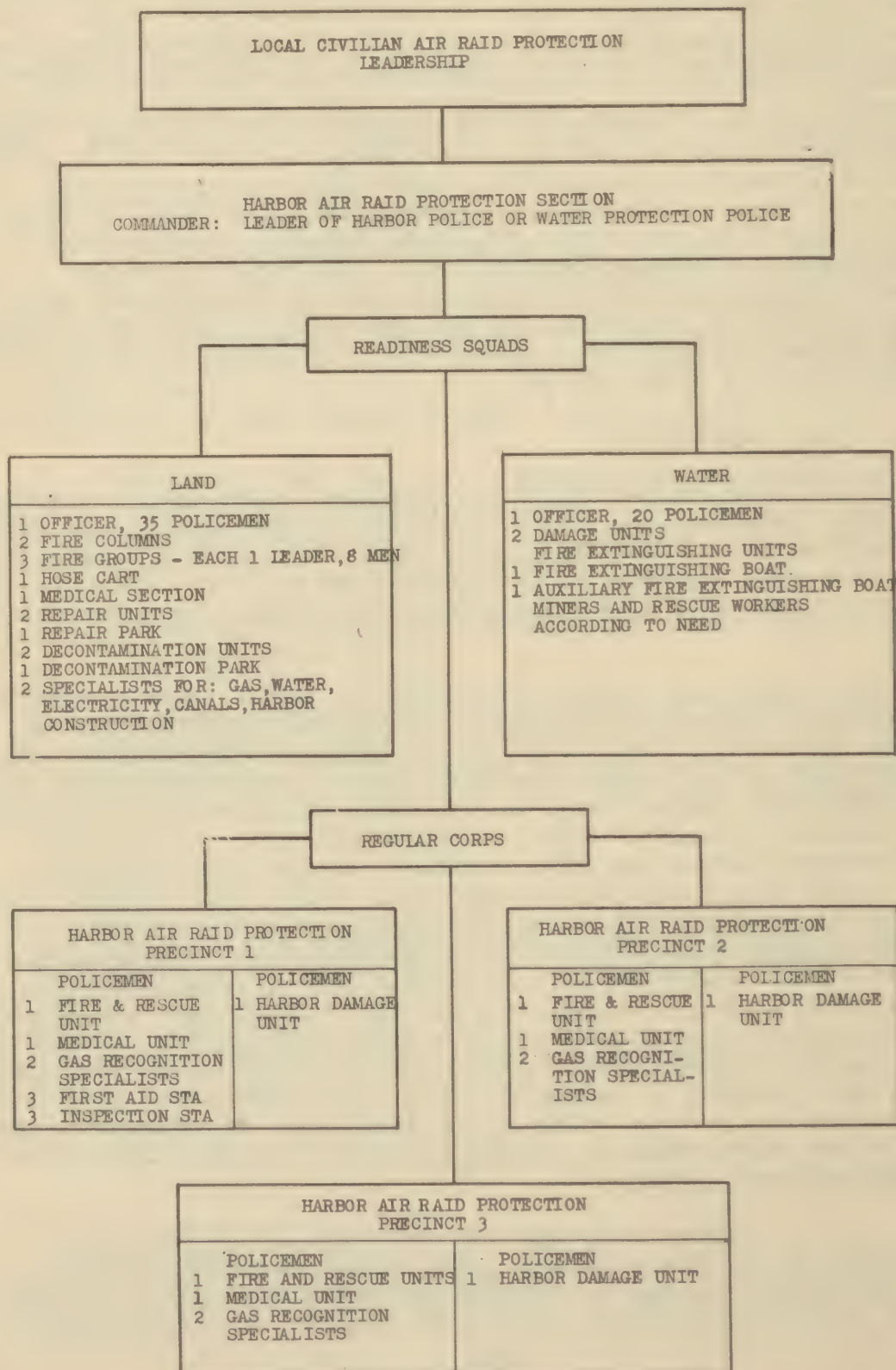
b. The second officer in command was usually appointed harbor district air-raid-protection leader (Hafen Luftschutzleiter) and was provided an adequate force to act as air-raid-protection police. Although these men held rank in the water police they wore armbands which identified their special services. The air-raid-protection leader was given over-all command of forces and units within the harbor area. They included professional fire companies, emergency medical units, heavy rescue units, nautical salvage units, water police and all available auxiliary forces and units. The harbor air-raid-protection leader closely supervised all air-raid-protection matters and organizations connected with factory-air-raid protection (for all shipyards, war plants, power plants, manufacturers and other industries), the extended self-protection service, railroad air-raid protection (for coordination only), and the self-protection program when residential and shop districts were included in the harbor area. This close supervision of all services had its greatest value in the development of mutual aid. See page 137 for chart "Plan for the Organization of Air-Raid Protection in a Medium-sized Harbor."

c. It is frequently the case that most of a harbor area is not readily accessible from other parts of the community except by water, vulnerable bridges or tunnels, and that damage to, or destruction of, them would partially isolate the district or important parts



# AIR RAID PROTECTION AND ALLIED SUBJECTS IN GERMANY

PLAN FOR THE ORGANIZATION OF AIR RAID PROTECTION IN A MEDIUM SIZED  
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thereof. Therefore, it was necessary to organize and equip the harbor protective forces, including the fire departments, so that they could be reasonably expected to be self-sufficient and not depend upon mutual aid and outside mobile reserve units.

4. Fire Protection. As stated above, conditions usually made it necessary to organize extensively both land and water equipment in a harbor area. On land, regular city fire department equipment and personnel were increased and organization of auxiliaries was required. Much attention was paid to the training and inspection of the fire departments of private industries, war plants and shipyards in the district, the fire departments of which were required to become regular auxiliaries of the municipal system. On water, the regular fire boats were augmented by placing auxiliary pumping equipment on ferries and private craft regularly plying the harbor and waterways, by organizing and training crews aboard them, and requisitioning their services whenever needed.

5. Emergency Medical Units. These units coordinated the efforts of auxiliary medical groups, first-aid and ambulance units, and the evacuation of wounded to other sections of the community.

6. Heavy Rescue Units. Well equipped heavy rescue units were considered essential in a harbor area because of the usual remoteness of outside help. These units, in addition to the customary rescue training, were instructed in the engineering technique of emergency repairs to bridges and other essential structures, and were equipped with the necessary heavy machinery.

7. Nautical Salvage Units. These units consisted of tug boats, each with a crew of 23 men, trained and equipped in emergency salvage work. They specialized in hastily shifting cargoes, reloading from a damaged ship to a dock or another ship, preventing the sinking of damaged ships and other typically "preventative" salvage. They were also trained and used in emergency rescue and first aid.

8. Air-Raid Warning. Harbor areas received their warnings in the same manner as other air-raid-protection districts or sub-divisions of a municipal area, that is, from the warning central or city control center by telephone, teletype, or radio to the control center of the harbor group. If the harbor area was large or remote, its leaders were sometimes ordered to sound their own sirens but usually the sirens were connected to, and operated by, the master switch at the main warning central of the municipality. The harbor group control center transmitted warnings to its subordinate headquarters, but important industries and installations in the harbor received confidential warnings direct from the nearest warning central or anti-aircraft headquarters. Visual signals such as large colored balls and signal flags raised on lighthouses and placed above channel direction lights were given to harbor shipping as an alert. In addition, the direction lights were



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blinked three times to denote a warning of probable attack and were extinguished to indicate a general alarm. The "All-Clear" was indicated by the re-appearance of the lights and the lowering of flags and signal balls.

### 9. Harbor and Waterways Air-Raid-Protection Rules.

a. Jurisdiction within a harbor area was vested in the commanding officer of the water police. His authority extended along inland waterways to the designated point where it joined the jurisdiction of the next port commander of water police.

b. Ships on waterways away from regulated harbors were required to maintain plane-observation watches as a supplement to the signals or warnings that might be received by radio. Upon entry into a harbor, ships and crews were subject to inspection and practice drills to determine their proficiency in fire protection and prevention, and in emergency air-raid-protection measures. Crews were subject to call in furnishing mutual aid to other shipping in the harbor. Ships in channel or in motion, upon receipt of a warning of probable attack or upon the sighting of enemy planes were required immediately to steer clear of the main channel and drop anchor until receipt of the "All-Clear" signals in order to prevent sinkings in the channel. Ferry boats were prohibited from starting a trip after the sounding of an alarm, and, if underway, were required either to return or to complete the trip, or to put in at another landing, whichever of the three expedients would most quickly get the passengers to a communal shelter.

10. Traffic Control. The handling of traffic on both land and water was definitely considered the responsibility of the air-raid-protection leader. The problem of getting large numbers of workers, mostly skilled, to and from places of employment which were important to the war effort constituted a major problem for harbor officials who believed that such movements were potentially important targets for air attacks. The planned defense was to stagger working hours and establish "relay" shelters, but no occasion ever arose to test the plan.

11. Shelter Policy. The providing of adequate shelter protection for employees was the responsibility of individual installations. The splinter-proof surface shelters erected in the earliest stages of the war were quickly replaced by heavily reinforced concrete surface and underground shelters.

12. Unexploded Bombs. In the early stages of the war, harbor rescue squads were trained to neutralize or dispose of unexploded bombs. Later, regular air force bomb-disposal units were accountable for unexploded bombs while navy units disposed of unexploded mines. However, in some emergency and isolated cases, harbor rescue units were called upon to function in that capacity.

13. Mutual Aid. Self-sufficiency within the harbor area was a requirement, since, in many cases, facilities were isolated from direct connection by land. Each facility, installation, industry, or enterprise, whether public or private, was required to make the sections of its protective organization available at the call of the air-raid-protection leader of the area, and, as a result, harbor areas seldom required assistance.



## XX. PROTECTIVE LIGHTING

1. From the inception of war preparations, it was accepted by military GERMANY that a very severe dimout approaching a blackout would afford some measure of night-time protection against air attack. For strategic bombing, that was undoubtedly true, but, for blanket bombing, it had less significance. Following the organization of the German Air-Raid-Protection League in 1933, certain lighting precautions were initiated, but few active operations were undertaken until warfare became an actuality in September of 1939. The basic light control measures were established by the Air Ministry; were reviewed by the Ministry of Transportation or other headquarters involved; were interpreted to the public by all manner of propaganda (printed, radio, posted orders, movies, and verbal instructions); and were enforced by the local police. The control measures also fixed fines and penalties ranging from five to several hundred Marks or imprisonment or both, but there is no record of such penalties having been numerous. The public was anxious to comply for its own safety. Any blackout exceptions had to be for sufficient reasons, on written request, and with full military approval.

2. Because of the severe dimout at all times, GERMANY did not need to consider the matter of sky-brightness, which was such a studied part of the American defense methods. In fact, the American evaluation of a dimout was based primarily upon the reduction of sky-glow and consequential lessening of the silhouette visibility of ships. Nothing of this kind seems to have been a part of GERMANY's protective lighting program. Her problem was merely the one of direct observation of ground lights, or of reducing the brightness of all illuminated surfaces and objects to about the equivalent of full starlight, viz., a brightness of .0002 foot-lamberts of the roadway as a criterion. In full moonlight and with surface brightness of no more than 0.02 foot lamberts, the clear weather visibility of larger ground objects was good enough for bombing, so, in essence, GERMANY's result was the elimination of distinctive ground patterns of lights, and the establishment of low brightnesses on dark nights.

3. The Basic Decrees. The major rules that established the basis for air-raid-protection lighting were:

- a. The blackout order of 23 May 1939.
- b. The order of 1 September 1939 which covered the treatment of windows, behavior of citizens, and reasons for controlling light.
- c. The decree of 30 December 1939 covering the official or military type of motor vehicle headlamp.
- d. The 8th air-raid-protection decree of 18 February 1939, which covered vehicle and vessel lights as to visibility range.

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e. The decree of 11 November 1941 which lifted the requirements for special small-sized bulbs in vehicles.

f. The decree of 26 February 1942 which included certain lighting precautions, along with camouflage.

Other rules were issued from time to time that involved colors of light, or light-locks at entrances, or which indicated the personal interest of Hitler in the subject. In fact, so many rules and local modifications grew up that the subject tended to be confused, and the local interpretations by the air-raid-protection police had to be the final authority. Nevertheless, by the late summer of 1939 (simultaneously with ENGLAND), the larger cities were well blacked out each night, and continued so until the war's end.

4. Training and Measurements. Defense lighting was included in the special training of some 300,000 young people, especially following a mandatory order of July, 1941, that required four hours per month instruction in that subject for those aged 13 and 14. Some lighting studies were included in training programs set up in 1939 by the National Air-Raid-Protection School, at WANSEE near BERLIN. Local police were equipped in a few cases with light measuring instruments or photometers chiefly to check street lighting, but they fell back on the specialists of electric or gas utilities in cases of detailed checks. By and large, the approvals were matters of visual inspection, and, by the very nature of the rules, they could be only rough approximations of personal judgment.

5. Times for Dimouts and Blackouts. The severe dimout was in operation continuously, each night from dusk to dawn. A time schedule was published in the daily papers and "Verdunklungszeit", or the light-dimming period, was given usually for a week at a time. It should be noted that natural darkness in GERMANY is comparatively short; in summertime it averages from 2200 to 0400 hours (on the war-time clock schedules, or double "daylight-saving"). Dimout thus did not impose much of a handicap upon normal life because night traffic and night life were almost non-existent. The blackout of factories did, however, interfere with labor. The "complete" blackout, which compared more to the operation in ENGLAND and never was so complete as what was attempted in the UNITED STATES, went into effect at the time of the public air-raid warning, and was relieved at the "All-Clear". One aim was to have shipyard workers use full lighting right up to the last minute. If raids had been widely intermittent, this schedule would have worked well, but when attacks or only warnings were frequent, the system broke down. That can be understood when it is noted that in HANOVER there were something like 1,000 raid warnings, although bombs fell during little more than 10% of them. Moreover, the extensive use of gas for lighting, with its plurality of valves and its slowness of control, made quick extinguishing and rapid (or safe) relighting a difficult matter. This relation between blackouts and frequencies of night raids should be kept.



in mind. Quick shifts from dimout to blackout were not easy in GERMANY, and they would not be easy in any country. Hence, frequent night warnings drive the defender to continuous blackout, if he relies upon that protection.

6. The Basic Lighting Rules. All outdoor or out-leaking light had to be invisible at a range of roughly 1,600 feet and greater distances, when viewed from any angle by a dark-adapted eye in total darkness. Variations and details were as follows:

a. Vehicle lamps were to be easily visible up to 330 feet, but not farther than some 1,600 feet. Early in the war, automobile headlamps were masked with opaque covers having horizontal slits, two to three inches long, four-tenths inches wide, plus a visor. At first, smaller than normal bulbs were decreed but, as these grew scarce, this item was neglected. Later, as of 20 March 1940, it was decreed that by October, 1940, all automobiles must have one standard design of driving headlamp, viz., the "Notek" device, mounted on the left front guard or at the center, at regular headlamp height. This had a narrow horizontal slit, plus a wide six-inch visor. Its price was \$6.00 (RM 15.00). The headlamp beam at 60 feet was to have its upper edge two and a half inches below the tope of the aperture, i.e., tilted downward one degree. Police were permitted to use unmasked headlamps, screened with violet filters. Dimmed parking lights and rear marker lights (blue) were mandatory.

b. Bicycle lamps were required in the forms of a masked headlamp of low candlepower, and a dim blue tail lamp.

c. Hand flashlights had to be screened with diffusing filters of blue color, and always pointed below the horizontal. A limiting size was the six-volt, .04 ampere miniature bulb.

d. Street railway cars were required to have headlights or headlamps conforming to the basic visibility range, plus a pair of outer-edge marker lights visible in the forward direction only.

e. Vessels on inland waterways were directed to screen their fixed navigation lights so they would be visible only up to 2,000 feet, and be especially shielded to minimize water reflections. On outside waters, the maximum visible range of mast-head lights was two miles, and no more than one mile for others. Portholes had to be covered, similar to other windows.

f. Traffic control lights on streets could have no rays above horizontal; must be unnoticeable beyond about 1,600 feet; must avoid casting silhouettes of pedestrians, and be waterproof and vibration-proof. Small bulbs (or mantles) plus shields or masks effected this, not unlike the masking of signals in LONDON, or NEW YORK CITY.

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g. Railway signals could operate, if specially hooded. A control device was developed for them, consisting of laminated silvered mirrors through which the rays came horizontally, limited to a vertical spread of some six degrees. With a 75-watt clear bulb, the maximum beam candlepower was 200 Hefner candles. These units complete for railway sidings and switches listed at \$16.00 (RM 40.00) to \$20.00 (RM 50.00). Within railroad cars, the 25-watt blue electric lamp was standard, plus the previously existing miniature blue bulbs serving for regular night lights. Either could be used, provided all windows were well curtained.

h. Out-door industrial fires and furnaces were problems for local treatment. Generally the instructions were to blanket or roof over all fires that could be permanently shielded to provide decks or hoods for arc-welding; to bank the fires in boilers or furnaces at preliminary alarms, and to cut all air-blasts or fuel-feeding wherever possible. In short, as in other countries, too many varieties of operations were in action to permit any one fixed set of applicable rules.

i. Show windows and displays could be used sparingly. Shop windows (subject to fuel shortage) could be lighted from 0600 to 1800 hours, but any spill light onto sidewalks was forbidden, since it might be glaring in the eyes of a dark-adapted vehicle driver. In some places it was permissible to burn illuminated advertising from 1100 to 1400 hours, but all such usages decreased for power rather than for safety reasons.

### 7. Treatments of Windows and Openings.

a. The light-tight treatments were obvious ones: plywood sections to be fitted into windows at twilight, opaque fabric curtains, paper, shutters, or paint. Use of paint was extensive on glass skylights and commercial windows, but deprecated because of fragility, and because all natural daylight that could possibly be admitted was needed. Not so much attention was paid to natural ventilation as in AMERICA, probably because of the cooler climate in GERMANY. Show windows could not legally be closed to prevent an interior view from the street, but many other commercial openings were permanently closed with lumber or brickwork. Where the building openings were opaqued, any reasonable amount of interior lighting was permitted, provided that it could be instantaneously cut off if windows were blown out. Should the citizen or business man elect to reduce interior lighting and not employ complete blackout windows, he was limited to a special black-coated electric bulb with a one-inch diameter bottom aperture, emitting no more than three lumens. As an alternative he could use small blue bulbs. Such usage was chiefly for hallways where outside doors might be opened. Since most window coverings were likely to leak light, the interior lighting had to be reduced in many cases.

b. The costs of providing window coverings were usually borne by the landlord or owner. Much plywood and valuable (later scarce)



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fabrics were used, but there is no evidence that the costs, dispersed as they were, constituted any seriously burdensome load upon civilians. German interior lighting in industries is not generally good by modern standards, and not only did opaque industrial windows and skylights reduce daytime illumination to a point of decreased production or of increased strain on workers, but all resultant extra artificial lighting consumed vital fuel. Except for the underground emergency factories, German industries had practically no windowless buildings.

c. Light-locks were mandatory on entrances to all public buildings and communal shelters. Blast walls often formed one part of such locks; interior extra partitions or curtains the other part. In this feature practices in ENGLAND were very similar to those in urban GERMANY. All new construction in GERMANY had to incorporate light-locks, if considerable foot-traffic were probable.

8. Colors of Lights. Definite decrees from headquarters had specified blue lights as mandatory for defense purposes. This seems to have been a fetish of Hitler. The choice of color may have been influenced by the long-standing usage of blue night lights in railways or naval vessels, but except for red stop-lights on vehicles, almost every dimout effort centered around blue lamps. Early in the war the blue bulbs were available with a fairly permanent (silicate) coating, but they later became unobtainable. Dipped or lacquered colorings were tried, but they peeled off, and, toward the end, the blue bulb usage was neglected. On 27 October 1940, certain easements of earlier orders were issued, which stated that:

a. Blue lamps were not to be used in headlamps, tail lamps or marker lamps of automobiles - only on the inside of car bodies and for rear license plates. The "free" lamps of taxicabs were to be a pale yellow, not noticeable farther than 1,500 feet.

b. Danger spots in highways were to be marked by a blue light, as should all unusual obstructions, filling stations, or roped-off areas.

c. Electric pocket flashlights were to be blue, except the red ones of police inspectors. (In ENGLAND the aperture was limited to one inch, plus a filter of at least one thickness of newspaper)

d. Automobile rear and stop-lights were to be red.

e. Trailer lights (triangles) were to be yellow.

f. Special entrance lights or entrance signs were to be blue.

g. Only one approved coloring liquid was official, viz., the "Tauchlackfarbe" as approved by the Air Minister.

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9. The Dimout of Electric Street Lights. Street lighting was likely to afford the most distinctive guiding pattern to an attacker, and it received the first and most critical attention. Details of how dimout was achieved are given elsewhere in field reports of this division for three representative cities. Suffice it to say in summary that typical procedures included:

a. Eliminating all light sources of distinctive color. This primarily removed a fair number of high intensity mercury lamps (yellow-green) and a lesser number of sodium vapor lamps (orange-yellow).

b. Drastically reducing sizes or wattages of lamp bulbs. Pre-war sizes ran from 40-watt to 1,000-watt, with 75 to 500-watt sizes making up more than 85% of the total. Usually the war-time or dimout sizes were from 10 to 60-watt, inclusive, chosen with regard to mounting height, and used one per fixture, instead of previous clusters. The neon glow lamps of less than 5-watt size were also used, chiefly for markers.

c. Reducing the socket voltage by one of two customary methods:

- (1) Connecting a pole-base transformer into each street light circuit, to cut the voltage roughly in half, i.e., from nominal 220 to about 100 volts. In HAMBURG about 18% of the units were thus treated, and the candlepower reduced to perhaps 1% or 2% of normal.
- (2) Using a second lamp bulb in the pole base or hood, in series with the one overhead, where direct current was present (often a fair percentage in business districts), with the same effect as above. For shelter signs and units that could not be well shielded, three bulbs were wired in series, which lowered the candlepower to a dull red glow.

d. Installing special blackout fixtures overhead at important street intersections, or at spacing greater than 500 feet, at the cost of some \$8.00 (RM 20.00) each, or else coating existing glassware with black paint, and hooding with metal cylinders. The characteristic light distribution resulting was roughly a candlepower of two to five, with no light above the horizontal, and a goal of something less than the equivalent of full moonlight illumination on the street beneath. Where a private electric utility had a contract with the city, the national government was supposed to assume a large part of lost revenue. An idea of the power reduction may be had from HAMBURG's records. Its normal street lighting consumption was on the order of 6,000,000 kilowatt hours annually; its blackout consumption was about 150,000.

10. The Dimout of Gas Street Lights. On a mileage basis, probably 60% of GERMANY's streets were lighted with low pressure gas. The



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customary control was by a pressure valve in each fixture, and a pilot flame. The usual unit had from two to 12 or more mantles, pendant. In larger cities the typical dimout procedure was to:

a. reduce to one mantle per unit, and from the pre-war 20 millimeter mantle of 50 Hefner lumens to a "Baby" mantle of about one-quarter that size.

b. Remove all units except those at important street intersections.

c. Burn all of the remaining mantles day and night, since the gas supply had to be maintained for household use on the same pipe line and the mantle consumption was no more than that of a pilot flame which could be blown out by bomb blasts.

d. Coat diffusing glass globes with black paint, or insert a metal disc within the globe beneath the mantle so that light might leak downward through a small aperture therein, or drop a cylinder of tarpaper around the unit beneath its metal reflector-hood. Modifications of these methods led to the same general results as in the case of electric street lighting.

11. The Use of Luminescent Paints and Special Devices. It was permissible (even encouraged) to band the static hazards, or edge doorways and mark obstructions with phosphorescent paint. Light yellow and light blue tints were approved, presumably the types well known as zinc and calcium or strontium sulphides. Himmler decreed these in 1942, the criterion being visibility at one yard for 12 hours of darkness. This practice had considerable, but scattered, usage and lack of materials probably prevented wider application. The professionally made phosphorescent signs, quite common in the UNITED STATES, were not in evidence. Traffic signals of types known in ENGLAND and the UNITED STATES as safety-island lights or bollards, were often masked to small apertures. In GERMANY what few existed were largely eliminated.

12. Blackouts Easier. Pre-war conditions made blackouts in GERMANY much easier to establish than in the UNITED STATES. For street lighting, GERMANY had comparatively few series electric circuits, and could break up its wiring into flexible groups. There were fewer miles of streets per unit of urban population, and easier change-over methods when so many fixtures were hung on cross-street cables. In AMERICA, thousands of special wardens were needed to turn off street lights. In NEW YORK CITY there were some 32,000 individual switch controls to be manually operated. In GERMANY, no such services were required. One executive order could specify a certain make of fixture (as for automobiles) and the inspector's job was simply to report the absence of that particular device. On the other hand, as is always the case when preparations are left until war time, the calm, non-political studies and tests could not

be made, and results were thereby more costly.

13. The Utility Situation. A civilian defense study of protective lighting brings into focus the relations between the dimouts or blackouts of a voluntary sort, and the continuity of utility services under bombing. The field reports have listed certain large electric generating plants, some of hydro but the majority of steam turbo-generators, or, in smaller units, of stand-by diesels, almost all of which escaped serious bomb damage. Inter-connecting high lines, of 50 cycle at 25 or 30 KV especially in north and central GERMANY, helped the exchange of vital power, but these alone would have been almost useless, if the major generating units had been demolished, or even if only the vulnerable switching and transformer stations had been destroyed. Relatively little damage can be done to underground electric cables. True, many were out but were promptly repaired, and, even in badly demolished cities, they were mostly in good operating shape at the end of the war. With one known exception - the underground steam generating plant at MANNHEIM - the plants were above ground and vulnerable. Buildings were prominent, stacks tall, coal piles indicative, out-going wires on towers definitely characteristic. Usually these plants were beside waterways. Their roof construction was very light, often glass sky-lights. Loose masonry splinter-proof walls between generators formed about the only protective construction within.

14. An Appraisal of Defense Lighting. The world may probably have seen in ENGLAND and GERMANY the most extensive and the last of the passive defense measures that have been termed blackouts. It is difficult to conceive of more submissive attitudes towards this operation, or of better public compliance than in those countries. Indeed, in view of the confusing laws and variable interpretations of German defense lighting, it is surprising how well it functioned. Some of the regulations (blue light for concealment, for example) seem based upon snap judgment of uneducated or non-scientific officials, and other rules (such as the visibility ranges in exact figures, when just the ordinary variables of human vision, let alone weather, could cause differences of several hundred percent) were actually unenforceable in practice. In spite of those difficulties the lighting was modified to as low a value as concealment from air-observation required. Whatever may be said of defense lighting, the betterments of GERMANY's effort would have been along the lines of a practical program worked out in peace times, proved at leisure, and not subject to sudden changes as events educated the politicians. In the UNITED STATES, this method of handling a very complicated operation seems the only logical one.

15. Comments. The question for the future is: "How much protection does a blackout give?" The German results show that for night-time blanket bombing it was at best a slightly delaying factor. For strategic bombing, the trend of, and known developments in, detecting instruments makes it seem doubtful that a city or even a large structure therein could be long concealed in the most perfect of blackouts. Rocket bombs would



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be totally unaffected by blackouts. Flares and incendiaries vitiate its value. It needs a calmer appraisal than it has received.

## XXI. SHELTERS

1. In order to understand what was probably the most tremendous constructional program in civilian or passive defense for all time, it should be recalled that a plan and a promise upon the part of top-ranking German officials were that safe shelters were to be available for every German citizen. This meant sure protection against high-explosive bombs up to perhaps 2,000 pounds weight, and immunity to all known incendiaries. German authorities failed to realise or to face this requisite of strength at first, but attempted to achieve it later. The shelter program meant gas-tight structures. It meant housing of communication and control headquarters, of fire departments, telephone and alarm centers. It meant the protection of hospital patients, and safe storage of public documents. It meant a sufficient number of cellar retreats for whatever fraction of GERMANY's 40,000,000 citizens might be caught at their residences, plus great cave systems, supplemented by concrete buildings above ground that could be reached in a 10 minute run or rapid walk by all the business folk and workers away from home, or by those lacking good cellar shelters. It meant a program which at a minimum would have required 5,333,000 cubic yards of concrete and 290,000 tons of steel reinforcing for each million citizens housed in reasonably bomb-proof structures. Toward the end of the war the amount of concrete per person was more than doubled, running up to 10 cubic yards. It meant underground caves with a capacity of 3,000,000 cubic meters (almost 4,000,000 cubic yards) of air space per million people, a truly staggering concept. If the promises had been fulfilled along the lines of the 1944-45 activities, namely, the erection of heavy concrete surface shelters (Bunkern), the estimated cost per person housed would probably have exceeded \$200.00—perhaps double that.

2. Evolution of the Program.

a. In spite of propaganda of safety and the hope of immunity from bombing, certain architects' drawings published about the time of the MUNICH pact (1938) indicate that large communal shelter structures were being planned before the war. In 1937, a fairly good underground shelter, gas tight, and resistant to light bombs was built at the HANOVER railway station. Ballistic experts of the air force at the EHRA LESSIEN testing station checked the strengths of shelter materials and outlined standards for concret slab thicknesses, and upon their findings it was at first thought that;

- (1) 1.5 yards thickness would protect against a 500-pound bomb.
- (2) 2.2 yards thickness would protect against a 1,000-pound bomb.
- (3) 2.75 yards thickness would protect against a 2,000-pound bomb.



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However, as experience developed the fact that these thicknesses were insufficient, the Germans increased the "safe" thickness to some 6.5 feet. Then, in shelters built in the last year of the war, the roof thickness was increased to about 8 feet, and where a vital operation was to be protected, up to 13.5 feet. These figures are set forth to illustrate the undecided race between bomb-resistant structures and bombs that constantly increased in penetrating force.

b. By the war's end, approximately five percent of GERMANY's population could be temporarily housed under shelter roofs of three to four feet thickness of concrete. Fifteen percent had access to shelters with ceilings of six to eight feet thickness. Reinforcing went from over 300 pounds of steel per cubic yard to 60. Sizes and shapes of shelters varied greatly.

### 3. Development.

a. It is not surprising to find that GERMANY waited many years after preparing for war before making definite plans for civilian defense shelters. History afforded them no experiences along those lines. In heavy concrete construction, the building of the West Wall defenses may have taken preference. Nevertheless, some plans were formulated by 1935 and public bulletins on small shelters came from the national government as early as 1934. These early bulletins and instructions were devoted largely to assisting the householder in supplementing the natural protection of his own property. By 1939 emphasis was being placed upon the building of large public shelters. It may be said in general that the actual construction of the latter on a large scale did not get under way prior to 1940. From then to the end of the war, construction continued, although delayed much by lack of material. The most notable shortage was that of steel used in reinforcing the concrete. In anticipation of that, instructions of 1 June 1937 were issued by the German Air Minister concerning the construction of shelters without steel, and, by 1945, the reinforcing in some cases was one-fifth of the earlier proportions. As bombing became more severe, even without saturation raids, the inadequacy of the average shelters became apparent. Actually most large public shelters were reinforced because even so they were not resistant enough, and the roof and side walls were made continually thicker, with 12 feet of reinforced concrete not uncommon.

b. It should be noted, however, that really safe public shelters were not available to the vast majority of the German people. Reliance had to be placed on house shelters, many of which were found to be entirely unsatisfactory even prior to saturation raids, because they were traps in a conflagration, or easily penetrated by medium bombs. Toward the end of the war, there was a renewed interest in building public shelters, extending even to those sections of GERMANY theretofore somewhat remote from Allied air attacks. In those places the typical attitude "It can't happen here" led to emergency last-minute construction, and precluded

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the possibility of building large concrete public shelters requiring six to nine months to construct.

4. The Code of Practice for Building Shelters. In July, 1941, there was issued a code of practice which was edited by the Air Ministry and by the heads of the inspection divisions of air-raid protection. This code summarized the fundamentals of bomb-proof shelter construction as follows:

a. Any program was to be for the entire city, and planned on an area basis with regard to local architecture and urban real estate developments.

b. Multi-story buildings above ground were given preference; underground shelter were approved only in exceptional cases because of their higher costs.

c. For civilian protection, the material could be varied according to capacity with 20% added for heavy foundations, as follows:

<u>Type</u>	<u>Capacity</u>	<u>Cu.yds. per person, max.</u>	<u>Min. thickness</u>
A	Over 1000	9.75	10.0 feet
A	1000 to 750	10.4	10.0 feet
B	750 to 600	11.0	10.0 feet
B	600 to 500	12.3	8.25 feet
B	500 to 400	13.6	8.25 feet
B	400 to 300	14.9	8.25 feet
C	Under 300	----	6.60 feet

d. For extended self-protection personnel such as average factory shelters, the above quantities of material were to be reduced by 25%. Hospitals and units of high importance could use whatever seemed necessary.

e. Roofs were to be of horizontal slab construction. Any false superstructure had to be fire-resistant.

f. Peace-time usage was to be subordinated.

g. Decorations were to be postponed until peace time, but camouflage was to be considered.

h. A complete shelter had to have the following rooms:

- (1) Gas-lock entries, preferably at least two.
- (2) Guard rooms, for seven people.
- (3) Wardens office.



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- (4) First aid room.
- (5) General rooms, for six or more people.
- (6) Halls as needed, and stairs.
- (7) Lavatories; one seat per 25 persons.
- (8) Wash rooms; one basin per 25 persons.
- (9) Rooms for mechanical devices.

i. Entries had to be three feet wide for 150 persons; over five feet for 250 persons. Area of the gas-lock had to be at least six square feet.

j. Rise of stairs had to be less than seven and one-third inches; width of tread not less than 10 inches. No stairs should be less than four feet wide, plus about one and one-half feet for every 100 persons. Ramp gradients should not exceed one and one-half to one. All stairs were to have hand rails on both sides.

k. First-aid rooms had to be provided in all shelters having a capacity of 300 persons or more.

l. Storage of fuel for eight days was mandatory.

m. For shelters housing more than 1,000 persons, or having more than six floors, one or more elevators were to be provided, carrying 10 passengers or 1,500 pounds.

### 5. Special Features and Equipment.

a. Of the 12,000,000 gas masks that were issued to German civilians, sufficient quantities were kept in shelters to take care of the scheduled occupants. In addition, the double steel doors with rubber gaskets and pressure fasteners, plus the air flow that came in through purification chambers or tanks and went out through high baffled apertures in walls or tall vertical stacks, were ample to exclude poison gases. Cellar shelters of private homes lacked these refinements, but were required to cover all openings, even to the extent of putting up cracks or pasting paper over keyholes and joints.

b. In semi-public shelters it was forbidden to have water or gas mains through the rooms, lest a break in them might flood the closed spaces. Multiple exits were always encouraged, such as holes broken through cellar walls to connect whole blocks of apartments, so that egress could be ahead of a progressive fire. White painted arrows on streets showed the paths to safety. No shelter doors were ever to be locked, or if so, then a key in a box with a glass cover was to be

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beside each door. The width of the door increased with the size of the shelter; usually it permitted four persons abreast in shelters for over 200, and in the largest, where perhaps 20,000 people might seek shelter in a 15 minute period, there were four doors as much as 15 feet wide. (The standard shelter entrances in ENGLAND were 27 inches wide.)

c. All large shelters had firm foundations, often with a wide apron to prevent angle bombs penetrating beneath the building. However, the "round houses" (see paragraph 10 d of this section) of medium size were generally on piling, probably with the idea of minimizing the transmission of ground shock.

d. Fire-retardant paints were tried for wooden parts of shelters, but for small fires the use of lime wash was probably the most practical. No oil lanterns, gas flames or acetylene were permitted in any shelter. Oxygen cartridges were noted in some; also ammonia capsules for fainting persons.

e. In the building of concrete shelters; banked-up sand sometimes replaced wooden forms. Sand or earth in fibre bags or even paper bags were used for temporary shelter work, but the containers rotted too fast.

f. The success of heavy shelters led to a program of building some six great structures for factories, totalling perhaps 100,000 square yards of floor area. Some 30% of airplane production went underground in tunnel shelters.

g. All large shelters were electrically grounded with heavy lightning rods. Interior wiring was exceptionally well done and shock-proof, with practically non-breakable fittings.

6. Some Shelter Failures. About June, 1943, the shortcomings of communal shelters became evident. In COLOGNE, a direct penetration through the roof of a large shelter killed all of its many occupants, In HANOVER the first railroad shelter had its two-foot ceiling penetrated, and a half-cylindrical shelter in HAMBURG was destroyed by the penetration of a ceiling of eight feet of heavy steel rails and concrete. A too light shelter (underground) in BAD OLDESLOE was penetrated and its occupants killed. Even the submarine pens had penetration through 13 feet of the best concrete obtainable. Similar examples showed that at the war's end, a concrete slab 12 feet thick was not a sure protection.

## 7. Location.

a. Public shelters were distributed unevenly throughout GERMANY, as might be expected from the character of the places. In cities furnishing good military targets, more shelters were found than in towns without war industries. Rural communities in general made little or no provision for public shelters. The German plan of placing public shelters only in important cities appeared sound, but as air mastery was lost, then the



medium-to-small town became a vulnerable target, and many casualties resulted. The policy of too little and too late within certain cities like MUNICH and AUGSBURG, on the basis of their being too far removed from Allied air bases for serious bombing, was a grievous error. The location of shelters within a city depended somewhat on population demands, although this was not so important as might be first supposed. It was the aim to have a communal shelter within a 1,500-foot radius of occupants, or twice this distance at the most.

b. In many cases public shelters had to be built entirely underground. Particularly was this true in the business districts where available ground space was at a premium. On the other hand, tunnel shelter were usually limited to sections of towns where hills were found, or where the level of ground water was low. Large many-storied shelters were necessarily placed where ground space was available, preferably remote from adjacent buildings. This often meant in city parks and plazas. In spite of the desirability of a remote location, many shelters were built in a row with apartments and camouflaged to appear like them, with painted squares to look like windows and with a false roof. The few subways were too near the surface to make good shelters, and their use as such was forbidden. In LONDON, by contrast, over 150,000 used the deep subways regularly.

## 8. Home Shelters.

a. In spite of the prevalence of many public shelters in GERMANY, most persons actually had to rely upon house shelters, usually located in basements. As early as 1934, instructions for building those shelters were sent out by the German Air Ministry, and emphasis was placed upon them throughout the war. The air-raid-protection service usually inspected and approved the shelter. In some cities, the cost was partially borne by the national government; in others, by property owners; and in still others, by the national government in cases of low income families. In general the State after 1937 undertook (1) the provision of rudimentary gas-proofing; (2) the provision of at least one emergency exit into adjacent cellars; (3) the bricking up of all existing openings to the exterior of the building; (4) in some cases, rudimentary strutting. In some cities the ground water level precluded the possibility of deep cellars in certain sections and more large above-ground public shelters were required. The size of the cellar shelter varied, depending partly upon the number of persons to be accommodated, but considerably upon the space as found. However, saturation raids proved these house shelters entirely inadequate, many people being killed by shelter collapse and many others trapped and smothered by fire.

b. The policy of using steel domestic huts, known as Anderson shelters, which prevailed to such a large extent in the UNITED KINGDOM, or of using a plurality of splinter-proof street huts chiefly of brick,

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had no counterpart in GERMANY. Neither was the portable splinter-proof device such as the British Morrison shelter found there. Open trenches seldom served as shelters for house-owners. A few outdoor shelters were found of the same general type as the home shelter, on the order of a strutted "root-cellar". These were ordinarily built mainly below grade, and were lined with prefabricated sections of steel and concrete. Some few were lined with wood. The Minister for Air reported in early 1944 that these trenches afforded effective protection. However, the provision that they should be dispersed, and not house more than 50 people each, plus the fact that they were futile against direct hits or gas, leads one to doubt their effectiveness. No provision was made for forced ventilation or toilet facilities, although most house shelters had electric lighting.

9. Semi-Public Shelters. Many basements in schools and public buildings were remodeled as shelters to provide protection for those in the building during the day and for the general public at other times. Many of the school shelters were open to the public at all times during the last year of the war, since in some cities more than one-half of the school children had been evacuated to small communities not likely to be bombed. Some had forced ventilation and all had electricity and toilet facilities. Gas-proof steel doors were provided. They were equipped with benches but not with bunks. Not all schools and public buildings had a shelter and, during the last two years of war, priority for materials for such shelters had been difficult to get. Furthermore, the policy of sending children home on the first public alarm, had relieved the demand for such protection in school buildings.

10. Public Shelters. There were four types of public or communal shelters in GERMANY: the trench shelter; the tunnel shelter; the cellar shelter; and the "Bunker".

a. The trench shelter was slightly below ground and usually covered by a concrete slab from one foot to three feet thick on which one foot to five feet of earth had been placed. The trench was usually about seven feet high on the inside and about six feet wide. The walls were of either concrete or wood. The length of the trench varied seemingly with the available space, but sections or off-sets usually divided it into galleries for some 50 persons each, and minimized a longitudinal blast. At each end of the trench there was an entrance usually through a wooden door, although some had steel. With few exceptions, wooden benches had been provided for each side of the trench. Forced ventilation, toilet facilities, and running water were not available. Little if any protection could be had from a direct hit of the smallest bomb although they were, in most cases, splinter-proof. The advantages of the trench type were rapidity of construction and low cost. This type of protection was standard for slave labor or foreigners but was used by others in emergencies.



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b. Tunnel shelter systems (Stollenanlagen) were much less common than covered trenches, but each was usually of large capacity. They were shafts run into a hill and, in most cases, with rooms opening out of a series of passageways. Some had as few as two outside entrances but one was inspected that had 15, although not all had been completed at the end of the war. Baffle walls of concrete were found at most entrances. Some had two and three floor levels which could be reached on concrete ramps. Usually there would be from 20 to 50 feet of earth on the top. The better examples of this type had reinforced concrete ceilings and sidewalls, and concrete floors, separate small rooms equipped with benches and bunks, running water, adequate toilet facilities and forced ventilation systems. Several examples of direct bomb hits were found in which no persons were injured. Not all tunnel shelters were so satisfactory. Some had ground water in them, were lined with wood, were without any conveniences save electricity and force ventilation. Some were merely dirt-floor tunnels lined with bent railway rails and corrugated sheet iron. Many times these large tunnels were located at inconvenient points since obviously they could be built only where the contour of the ground permitted. In spite of those limitations, cases of overcrowding occurred, especially as bombings became more severe.

c. Large communal cellar shelters were numerous, particularly in congested parts of cities. Not only were available basements utilized, but they were extended by further excavation, often by constructing sub-basements. Furthermore, many were found which were not located under buildings, but were under a parkway in a street. One parkway cellar shelter inspected, about two city blocks long, was approximately 30 feet underground and consisted of two levels divided into small rooms. Nearly 10,000 people could be accommodated. The effectiveness and comfort of these shelters varied widely in spite of basic instructions and general specifications, but the general level of comfort was fair. The roof ceilings were usually of two to five feet of reinforced concrete, the amount depending upon the earth or building structure above them. Sidewalls and sometimes partitions were likewise of concrete. Forced ventilation was standard and could be maintained in case of failure of the city electrical supply either by diesel electric generators or hand-operated machines. In some, temperatures could be controlled within limits. Adequate toilet facilities were had for normal capacity but as bombing increased, overcrowding became a serious problem. In some cases adequate hospital service was available. Many of these hospitals were still in operation at the time of the survey and will probably continue for some time to come, since many outside hospitals have been demolished.

d. The massive shelter above ground, was GERMANY's great experiment. No shelter buildings exist in the UNITED STATES or ENGLAND similar to these so-called "Bunkern". They were tall heavy buildings designed solely for the air-raid protection of persons, documents, and instruments, but with a tentative peace-time usage in mind. From the standpoint of external appearance, "Bunkern" fall into three groups:

(1) the apartment house type with a false roof and painted walls to imitate windows; (2) the large rectangular concrete building with flat roof; and (3) the round, cylindrical buildings faced with masonry. Examples of the last two types are shown in illustrations T-82-D-1 and T-82-D-4 on pages 159 and 160. Later in the war the "round house" was no longer approved in GERMANY, perhaps due to the excessive cost for its capacity of 300 to 500 persons. The exterior wall was about three feet less in diameter at the top than at the bottom. The interior wall was cylindrical. The walls of non-reinforced concrete were six and one-half feet thick at the base and five feet at the top. Not all, but most, of these houses were veneered with brick. They were designed so that in post-war times they might serve as storage houses. A variation of the "round house" was the Winkel shelter, more of a conical shape designed to deflect direct bomb hits, but not proving dependable in this, nor economical to build.

e. The more recent shelters of cube-like shape varied in size but a typical one recently built in HAMBURG was 56 feet square and 80 feet high, with walls and roof about seven feet thick. Some 6,914 cubic yards of concrete made from 2,239 tons of cement, and reinforced with 366 tons of steel were required in the construction. It was eight stories high and had a capacity of 1,300 persons. The cost of construction was \$280,000.00, equivalent to 700,000 Reichsmark, or roughly \$215.00 for each person to be housed. Shelters of this type required nine months at a minimum to complete. Many shelters were larger than the one described and many were smaller, most having capacities of from 500 to 2,000 persons.

f. The usual "Bunker" had five or six stories above ground and commonly a basement. Upper floors could be reached by several stairways, usually two, and in a few cases by elevators. On each floor there was a number of rooms equipped with bunks and benches. Some rooms were reserved for mothers with small babies. On each floor would be found suitable toilet facilities. In many cases a complete hospital was available with rooms for doctors and nurses. In cases where there was no hospital, at least first-aid service could be had. Some few had kitchens.

g. Assured ventilation in a massive shelter was a serious problem. It had to provide (1) for the removal of the carbon dioxide given off by so many persons in such a small space; (2) for the possibility that the Allies would use gas; (3) for humidity control; and (4) for removal of odor. The recommended amount of air was 11 cubic feet per minute per person; the maximum and minimum temperatures 24° C and 17° C; the maximum and minimum relative humidity 75% and 25%. Combination machines for providing the heating and ventilation were recommended in 1941 and were installed in many shelters. They were operated by city electrical current or, in case of its failure, by a local diesel generator. In one case two large "Bunkers" were served by a 750 KVA machine. The most serious difficulty encountered during raids



PHOTOS 5 & 6 ON PAGE 160:



Photo 5 - Large rectangular concrete 'Bunker' with flat roof.



Photo 6 - Cylindrical 'Bunker' faced with masonry.



arose when three or four time the listed capacity of persons would crowd into these shelters, thus making the ventilation condition very acute. Some attempts were made to assign space to persons but that procedure was never very satisfactory, and it broke down altogether during heavy raids. Many bombed-out families late in the war did have temporary living quarters in shelters assigned to them, hence the ventilation system was in constant operation.

11. Special Purpose Shelters. Typical examples were as follows:

a. BRUNSWICK state Hospital shelter, typical of the better class of shelter for the sick, was joined on to two wings of the hospital. The Hospital and shelter were four stories high and entrances were provided from each wing on each floor. Elevator service was also available. The shelter was large enough to take care of 600-bed patients as well as the staff of 300. About two-thirds of the hospital was destroyed, but the shelter was undamaged, and no one injured during any of the air raids.

b. AUGSBURG railway station shelter was designed for the protection of railroad equipment and not for passengers. The emergency construction was under the rubble of an adjacent building (destroyed in February 1944) for housing the telephone, telegraph and teletype equipment normally in the station. All equipment had not been installed at the end of the war because excess humidity stopped its use. The necessity for an alternate set of such vital equipment in a shelter seems obvious, but the best heating and ventilation system obtainable had to be used, particularly for reducing relative humidity.

c. The main purpose of the Wielandstrasse shelter in HAMBURG was to house valuable papers, although the basement and first floor accommodated attendants and some local citizens. Many valuable records were protected and still were in this shelter. Birth and marriage documents, church papers, and certain important and original documents from libraries predominated. This shelter, seven stories high plus basement, with walls and roof more than eight feet thick, and floor size approximately 80 by 160 feet, could also accommodate 200 persons. In spite of the example given, it is more probable that GERMANY's attempt to preserve valuable papers and instruments in shelters was a secondary matter.

d. The policy of providing a safe location for the headquarters of control center for the air-raid-protection services was not unique in GERMANY. The same policy existed in GREAT BRITAIN and in the UNITED STATES. One such interesting control center shelter was located in AUGSBURG. It was designed and constructed after a previous location had been recognized as unsafe. This control room shelter (Befehlsstelle) was constructed in 1940 and 1941 in an old beer storage cellar. It was equipped with electricity and toilet facilities; a ventilation system which could be operated by diesel generator in case of power failure; and all equipment necessary for a control headquarters. Doors were

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indicated by phosphorescent paint and the control room itself was entirely so painted. No persons other than those connected with control room operations were admitted. Some attempt was made at camouflage by placing branches of trees upon the top of the shelter, although the only evidences observable were vent pipes. The cost of this shelter, paid by the national government, was \$100,000.00 (RM 250,000).

e. An interesting combination of a public shelter and a setting for anti-aircraft guns, together with the necessary housing of the anti-aircraft personnel and warning central group, represented "Bunker" construction at its best. In HAMBURG, there were two groups of these massive structures, each consisting of two such shelters. One is shown in illustration T-82-D-1 (page 159). They were started in 1942 and completed in 1943, requiring six to nine months to build. Several underground shelters held more persons, but in volume of material above ground these shelters were among the largest in GERMANY. The larger one shown had a rated capacity of 18,000 persons, most of whom were members of the anti-aircraft forces or other military personnel. In fact, the civilian capacity reported by the police was only 3,400 persons. A great deal of overcrowding was reported, and it seems conservative to estimate that it had been occupied by no less than 50,000 or 60,000 persons on several occasions, or 100,000 for the pair. The building was six stories high, plus penthouses on two elevations. It had two large elevators and all the modern conveniences previously listed for the best shelters. The roof was almost 10 feet thick as were the side walls of the first floor, above which the walls were seven feet thick. A parapet seven yards wide at the corners and four yards wide above the sides shielded the walls and the ground close by. On the two levels above the roof were anti-aircraft guns. The number of direct hits made on this "Bunker" by Allied air forces had been reported from one to about one dozen. Inspection leads one to believe that several hits had been made on the parapet and roof, and more on the ground nearby, but no crippling damage resulted. There were no evidences of transmitted ground shock.

f. Shelters were also used to house certain essential industries where necessary floor area was small. An excellent example was a submarine pen of massive construction at HAMBURG. It was sufficiently large to house 20 small submarines at one time, having five sections, each docking four submarines. The size of the structure was estimated to be 500 by 475 feet. The top of the three lower pens was approximately 11 feet thick; and the top of the two higher pens, a full 13 feet of heavily reinforced concrete. This structure had an inside ceiling height of some 35 feet and could shelter about 5,000 workers. On 8 April 1945, in the afternoon, six direct hits were made, all of which penetrated the roof, killing 40 persons and upsetting a dry dock carrying one submarine and splintering others in the slips. This destruction suggests that as shelters are made more bomb-resistant, larger bombs may be dropped from larger planes and continue to destroy whenever direct hits are made.



12. Non-raid Uses of Shelters.

a. The first continuous use to be made of shelters was for the emergency housing of bombed-out persons, particularly those engaged in essential industry or in the air-raid-protection service. Other citizens were evacuated wherever possible. Such use had rapidly disappeared prior to the survey, but existed during the latter months of the war.

b. A second use of the better shelters was to continue to accommodate hospitals that had been demolished and such can be continued for years. These hospitals seemed well equipped and, from a layman's point of view, well organized. It is quite possible, however, that the dreary atmosphere found in shelters may have a bad psychological effect on the patients.

c. A third use of shelters was for housing displaced persons. The shelters seen were not among the best and were not well kept. No records are available of rentals or obligations of occupants, nor of any system of priorities.

d. A fourth use of, or plan for, shelters, was for storage. It had been planned by the German to use the better ones for that purpose after the war, and inside partitions were removable for that reason.

## XXII. GAS PROTECTION

1. Introduction. The program of protection of civilian populations against poison gas was a well planned and integrated part of the air-raid-protection services. As early as 1934, a few gas-protection leaders were appointed in the most important districts and cities, small technical staffs were organized, and plans were made which could be put into effect at the local level. It was not until 1939, however, that complete organizations were ordered set up and that active preparation was begun. The leaders were appointed by, and were responsible to, the local police president. The railroads, postal and communications services, the national highway traffic service and the waterway services had gas-protection units as part of their independent air-raid-protection services. Even the air force had mobile troops in organized gas-protection units to assist communities in case gas was used.

2. Organization. An industrial or teaching chemist or a pharmacist was generally chosen as the local gas-protection leader. On a higher level were regional leaders and the highest authority rested in the Air Ministry in BERLIN. The local leader was responsible for organizing and training his staff which consisted of a relatively few chemists who were assigned to specific areas within the city. Members of the gas-detection and decontamination units were selected from the auxiliary firemen and were given training under the plan that they were to work as firemen until needed in the gas-protection service. Laundries and motor parks were designated and were staffed with trained personnel and equipped for decontamination of clothing, vehicles and movable equipment. Cleansing stations for persons were built in all first-aid stations and improvised in public bath houses and school gymnasiums, and staffed with trained personnel.

3. Gas Protection in Construction. All buildings and public shelters constructed or modified to house air-raid protection activities were gas proof. It is an interesting feature in construction detail that two heavy steel doors with rubber gaskets were used at each entrance or exit to form a gas-lock chamber. All of these installations had mechanical ventilating systems with auxiliary diesel or hand pumps. Almost all of the ventilating systems had gas filters. Elaborate cleansing facilities were built in each first-aid station. (See diagram in Section IX, paragraph 3 e of this report.)

4. Equipment and Supplies. In 1939 all air-raid-protection personnel and war workers were issued gas masks. The firemen, police and important protection personnel received a superior-type mask. By 1944, masks of a simpler design were either issued or available by purchase to every citizen, and special box or sac-type masks equipped with bellows were provided for infants and small children. The police, firemen and gas-protection personnel had rubberized protective clothing. It is significant that the manufacture of gas masks and protective clothing continued until the last days of the war. The decontamination groups had trucks



equipped with cleansing apparatus and chemicals. In important harbors there were ships equipped for gas detection and decontamination. In addition, in each region there were large trucks which were completely equipped, manned and available to be sent into nearby areas. There were also large boxes of complete equipment for gas protection all packed for transport by air to areas needing them. The gas detection teams had small portable chemical testing and collecting kits. The gas-identification laboratories had complete chemical equipment, some having elaborate gas analysis and research apparatus.

5. Training of the Public. This was a divided responsibility of the leader of the gas-protection service and the National Air-Raid Protection League. Members, and especially the instructors of the League, were taught by the leader and his assistants. They also assisted in the lectures given by the League to the public. To avoid frightening the public, instruction and publicity were kept at a minimum. Only about 30 minutes time was spent in discussing the use of the gas mask and self-protection methods.

6. Gas-Protection Schools. The local leaders attended several courses of training in regional schools. These courses were given once or twice a year throughout the war. At the local level, schools were conducted by the leader and his staff for the training of the independent gas-protection units which were part of the air-raid-protection organization in the more important industries. These courses ran for about five days and the time was divided between lectures and demonstrations which were conducted in the plant. The nature of poison gases, their recognition, their effects, decontamination, first aid and medical aid were stressed. The air-raid-protection police were given even more elaborate instruction. The leaders of the self-protection units received less detailed training. Doctors, nurses, and helpers in the emergency medical services, were given lectures and demonstrations on the nature and behavior of poison gases. The teaching of the diagnosis and treatment of gas injuries was the duty of the chief of the emergency medical services.

7. Mobilization and Operations Plan. During the first bombings there were many "false alarms" due to the odors of unusual non-poisonous gases from explosives, incendiaries, the incomplete combustion of burning material and sewer gases. When one of these reports was made by an air-raid warden, specimens were secured and an analysis was made. No poison gas was found to have been used in any of the raids. Had one been positively identified, a report would have been made to the leader in the central control room. The kind of gas, the amount, atmospheric temperature, the direction and velocity of the wind and other factors operating would determine the nature of the instructions to be given to the public along with the gas alarm. For those reasons, it was planned to give the alarm by radio and sound trucks. A warning triangle was to be used in outlying and rural areas. The fact that different gases would present different problems made most of the operation plans subject to the direction of the leader.

8. Comments. The gas-protection service seems to have been adequately planned and the personnel well equipped and trained. The fact that both contaminated and clean casualties were to be brought through a common entrance and gas-lock of a first-aid station into a waiting room before separating them would certainly have resulted in contaminating all the injured, the staff, and the station, even though the protection was apparently adequate. The lack of education and training of the public would probably have caused a panic during a gas attack. Many of the gas-protection leaders thought the National Air-Raid Protection League should have permitted more education of the public. Certainly the use of the radio and sound trucks would have failed during heavy bombing. There was no plan for other methods of giving the alarm in cities. The uncertainty of being able to give directions during a raid would not have been an adequate alternative for the training of the public. Although there was a strongly divided opinion about the probability of the use of gas, the protective services and supplies were maintained at a high level until the end of the war.



### XXIII CAMOUFLAGE

1. Any reasonable camouflage is valuable in defense, chiefly upon the basis of how much or how long it may delay or to what degree it may divert "pin point" bombing. In any phase of operations previous to complete control of the air, good camouflage is fair protection. After air mastery develops or when blanket bombings (particularly night operations or attacks through cloud strata) become the type of attack, then the value of camouflage dwindles or ends. Thus it was in GERMANY, where protective concealment was practiced with a greater variety of materials, probably with greater ingenuity, and certainly with greater expenditure of manpower, than has been used heretofore by any warring nation.

2. An appraisal of protective concealment of civilian structures in war time GERMANY should consider two basic types, namely:

- a. Long range or permanent camouflage.
- b. Emergency, temporary, or seasonal camouflage.

3. Permanent Camouflage.

a. The embellishment of enduring structures such as large shelters represents this type of protective concealment. From the first--even before MUNICH (September 1938), it was planned to finish the tops of large shelters so that they would simulate neighboring large buildings. Architects' drawings show elaborate roof treatments, dormer windows, false peaks or towers and sidewall veneer. Earlier communal shelters such as those common in COLOGNE, HANOVER, and HAMBURG were actually so built. Some appeared like large country barns; others like the commercial buildings nearby; and still others not unlike chapels or old water towers. The false roof was often of wood beam and tile construction above a horizontal concrete slab which was the real bomb-resistant roof, and variations ran all the way from overlays of sod or earth to a Norman chateau tower with its pointed cone surmounted by a filial or weather cock.

b. As the tempo of shelter construction attempted to keep pace with the increased scope of bombing, these concealing roofs were set aside, but up until the last, the large shelters had projecting reinforcing rods and similar features providing for later additions of brick veneer. In the case of industrial structures, this form of camouflage was not evident. But few major factories, however, were added during the bombing years, and such as were above ground were sometimes divided into relatively small buildings and scattered among thick growths of trees. Isolated structures such as bricks would gain very little from being disguised to blend with surrounding buildings, if any; furthermore, where temporary coverings could be added at any time, structural camouflage was unnecessary. There were exceptions of note, however. Netting over oil tanks or petroleum stills or over

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such units as are peculiarly characteristic, fails to disguise them completely.

c. Could GERMANY have continued her program of construction of large six to eight-story shelters above ground, it is obvious that superficial constructional features would have been planned for concealment reasons. German officials point out, in confirmation of American and British experts, that the best camouflage is built into the structure from its inception. It cannot be effectively added later. A logical conclusion, therefore, is that it is continuously prudent to guide and control the peacetime building of structures of military or civilian protection value, so that in their sites, their heights, and in their exterior trims or details, they will take advantage of the first principle, that of blending into their surroundings.

4. Emergency or Temporary Camouflage. In order of importance, the concealment methods used in urban areas were:

a. Coverings of netting, characterized by new materials rather than methods.

b. Dummy cloth and fabric coverings, or structures simulating the extension of streets and park land over water.

c. Paint treatments, including coloring of concrete.

d. Artificial fogs, especially in harbor areas.

e. Glare confusion of aircraft with powerful ground search-lights.

5. Camouflage Netting. Wide usage was made of coarse netting to conceal fuel storage tanks, to shelter small harbor craft, to cover medium-to-small buildings, to drape over vehicles, to conceal trench shelter entrances, and to cover raw earth, or to roof over small sections where close-growth timber had been cut away. As experience was accumulated, certain features of value evolved that should be noted.

a. The earlier netting was of fairly small mesh cord, with scraps of green and black burlap. This held snow or lacked strength without excess support when horizontal, and was not fire proof. Rotting and other bad features caused it to be disapproved.

b. Later netting was of light soft iron wire, meshes roughly six inches square, and with clusters of small twigs or tufts, similar to bunches of pine needles, every six to ten inches. On occasion, scraps of rag or of coarse paper were twisted in. The virtue of this netting was its high tensile strength, and, except for the inflammable twigs, its fire-proof nature. It was an obstacle to fire fighters because it interfered with water sprays on fuel tanks or fell with its supporting



poles and burned fire hose beneath. Nevertheless, it served well on bridges, in roofing over numerous groups of 60,000-barrel oil tanks, or in covering parts of low industrial buildings. It was commonly held clear of the structures by telephone-size wooden poles and wire messenger cable.

c. A refined design made use of twisted strands of flexible plastic and strips of coarse black paper, roughly one-half inch by 10 inches, both being fire proofed. This synthetic netting was very strong, neutral in color for both winter and summer, and although it would melt in intense heat, yet it seemed to be the best solution to date. At least it would not be rotted by sulphur trioxide or similar fog fumes, as was the case with cord and fabric netting.

6. Dummy Coverings over Water. Most ambitious of all individual camouflage installations were the coverings built over water to simulate land. Examples have been described of the two 30,000-square-yard areas of Lake Maesche in HANOVER, and the 180,000-square-yard area of the Binner Alster, HAMBURG. Essentially these bodies of water were decked over with framed horizontal wooden forms of flat timbers supported by medium piling in fairly shallow fresh water, the frames either just submerged or just above water. Upon this base was loosely laid or nailed an open work of flat scrap lumber, pieces from one to ten inches wide, and over the whole was a mat of rushes, branches, and coarse netting. On occasion, imitation hills 15 feet high were added, or clusters of net-covered lath framework were erected to imitate trees or bushes. The whole was irregularly sprayed with paint roughly to match the adjacent land. Whether or not the paint used had high infra-red-reflectivity to match natural foliage is not known. Unless it did, much of its value would have been lost. The work required tremendous manpower and effort but yet it was vulnerable to fire. The Alster basin covering, built in 1941, was destroyed in the great fires of 1943. A failure of the technique of this work resulted from its very size and its too-noticeable change in the landscape. Further, the construction was done in daylight, or was photographed in progress, so that it lost its major value. Even so, the protection must have been of real value at least in HAMBURG, where the addition of a dummy viaduct, displaced from, but parallel to, the real (Lombard's) viaduct may have contributed to saving the latter very vital rail and transportation link.

7. Paint Treatment. In no disclosed cases did the German camouflage usage of paint attempt such elaborate scenic effects as were applied on several American industrial plants. In fact the typical application in GERMANY was merely an irregular mottling of surfaces in green, gray, black, tan or brown, or else, as exemplified by large shelters, coating the concrete in dull black. On the sides of some structures were painted dummy windows, but the value of that was apparently negligible. Small harbor craft were not generally camouflage-painted, although ocean going vessels had the characteristic zig-zag or bright and dark patchwork on hulls and superstructures. German seamen believed that the imitation

of the bow wave, or extension of a white wake, was the chief aim of ship camouflage. A noteworthy paint application was the green coloring of sections of the concrete center strip of automobile express highways (Autobahnen) to imitate the customary strip of sod. Here the idea was to use these sections for airplane runways and the operation seemed successful.

8. Artificial Fogs. Use was made, especially in low lying areas such as harbors, of sulphuric acid and lime or sulphur trioxide vapor, compressed in 26-gallon (or 100-liter) steel drums. Such artificial fog was not practical over extensive areas and seemed confined to such vital spots as oil refineries. It was corrosive to fabrics.

9. Glare Confusion. The use of tremendously powerful arc searchlights for glare confusion of bomber pilots seemed part of the defense plan. Tactically, it appeared likely that these were used in groups of several units mostly mobile and well camouflaged beneath netting or held in dense woods during daytime. American tests had disclosed the futility of glare confusion with small volumes of light (such as from a 1,000-watt incandescent lamp), but the results from the super-sized German searchlights were good. These units had optical glass mirrors as large as 80 inches and carbon arcs taking 450 amperes at 110 volts. The smallest had 60-inch mirrors, and used 200 amperes at about 75 volts. They were remote controlled.

#### 10. Comments.

a. Decrees urged civilians, or the air-raid-protection police, to do what they could with camouflage but little was done except with netting. The costs of camouflage for communal projects were assumed by the national government. Installations of camouflage were supervised by the local police. The impracticability of decking over large water areas, or of manipulating material that should be fireproof, discouraged that type of camouflage. Artificial fogs were useful only as a thin ground veneer on calm days and they were corrosive. Scarcities of materials plus failures of pre-war types of netting led to light, neutral-colored non-metallic netting of high tensile strength.

b. Superimposed upon such rather academic teaching of camouflage practices as have existed at Fort Belvoir, or in addition to texts on this subject such as the excellent compilation of Major Breckenridge, it would seem profitable to correlate ground data contained in the field reports of this survey with photographic and reconnaissance records of the army, to reach practical appraisals of protective concealment. Some functions of camouflage, particularly the constructional trim, orientation and placement of vital structures, should not await the incidence of war.



XXIV. CONDUCT OF THE PUBLIC DURING AIR RAIDS

1. At the time of air-raid "General Alarm" the progress of civilians to shelters seems to have been orderly and to have been sufficiently spread over the available 10 to 15 minutes warning period, so that crowding at entrances was not commonly serious. In general, people went to shelters willingly, especially after their initial bombing experience.

2. Some types of public reaction are listed below:

a. Passengers on railroad trains when in the country kept inside the coaches; when in the stations they were rushed into the railroad shelter under charge of the conductor.

b. Industrial workers on important jobs remained at work until the final raid warning and were supposed to have a company or factory shelter close at hand.

c. Mothers with children proceeded to shelters at early warnings; men of middle age were supposed to remain at their residences if not at work, in order to cope with local small fires.

d. School children were evacuated to their homes at the time of the first public warning.

e. Hospital bed patients were frequently placed in shelters regularly each night.

3. Who were allowed in Shelters.

a. At the public warning, only unemployed citizens, old or decrepit persons or children were to go to communal shelters. At the "General Alarm", workers took cover. Priority industries were supposed to see that workers had a short radius of movement; in other cases the citizen was generally to have no more than a rapid five minute walk but it was often longer.

b. Able-bodied citizens were supposed to stay outside the shelter entrance to assist late arrivals and to help the guards. In the order of priority for occupancy the following were listed.

- (1) Women and children.
- (2) War casualties or injured.
- (3) Old or helpless people.
- (4) People with no home shelters, and with police pass.

- (5) Workers in the vicinity unable to reach their homes.
- (6) Employees of industries with police authorization who could not reach their own shelter.
- (7) Foreign male and female workers having certificates that they could get no other shelter, provided there still remained roof for them.

c. Records, not altogether clarified, disclose that the issuance of shelter tickets was a subject of rivalry between the Party chiefs and the air-raid-protection police. The former wished to distribute patronage in this way, but confusion resulted and local civilian authorities resented the discrimination. Up to the war's end, there were arguments on this score, but when raids grew in intensity, all segregation failed. About the only regulation adhered to was the one whereby the foreigners had to make the best of very inadequate and unsafe covered trenches.

#### 4. Guides and Markers for Large Communal Shelters.

a. The majority of communal shelters were marked by a translucent glass sign at each entrance, supplemented by a flat enameled metal sign screwed against the wall. The latter sign measured 34 inches long by 12 inches wide; carried the working "Public Air-Raid Shelter Room" in black letters at least one inch high on both sides of a central horizontal red bar or arrow about four inches wide, and in black figures on the bar was stated the capacity of the shelter. The black-ground was yellow-orange color. Signs of similar design, except always with a direction arrow upon which was given the street name and address of the shelter, were mounted about eight feet high on trolley or street lighting poles, or special wooden posts. Each such sign was visible in daylight from a neighboring one. These direction signs were usually spaced one block apart, and distributed on street corners within a radius of two or three blocks from each shelter. In some instances a large billboard in front of the main railway station carried a list of several neighboring shelters, with street addresses.

b. Obviously a stranger in a blackout might have difficulty locating a shelter, so luminous translucent signs were mounted at sidewalks in front of important shelters and other strategic spots. These signs were two-faced, each face measuring roughly 11 by 32 inches, and the two faces, with sheet metal cover and projecting eaves, inclined some 30 degrees from the vertical. Each face carried the same red direction arrow on a yellow background and the street address. The mounting was about eight feet high, on wooden posts. Inside each sign were three of the clear bulb 15-watt electric lamps, usually wired to burn in series so that each had one-third normal rated voltage. Thus, instead of giving their normal 135 Hefner lumens, each was reduced to a dull glow of about .03 lumens. Because of their low brightness, these signs burned all of each night.



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c. Supplemental to all signs, it was not unusual to burn a small blue lamp at shelter entrances up until actual raids, and white light came out of shelter entrances around blast walls until the doors were closed at the last minute, so there was little reason for a citizen failing to find a communal shelter if one existed.

### 5. Sudden Movements at Raid Warnings.

a. Vehicles moved up until the "General Alarm", then were parked so as not to block emergency traffic or entrance ways. Until then motor car speeds were limited to 16 up to 30 miles per hour. Bicycles could move at all times but there was no checking system for them or for other things at shelters, so people moved mostly on foot. Night-time traffic was almost altogether official business, and proceeded as usual until stopped completely. Daytime traffic, at the raid warning, speeded up suddenly and some increase in accidents occurred, but in view of more pressing events "people got used to it".

b. Some of the hazards of rapid movements of pedestrians were reduced by banding trees with broad markings of white paint, and painting the bases of street lighting and trolley poles, as well as any prominent sidewalk objects. Gateposts were edged in white - sometimes with phosphorescent paint - and edges of curbs painted in alternate black and white strips, each about two feet long. Automobile fenders were edged in white. For safety in emergency connections, all utility services were colored green for gas, blue for water, and red for electricity. Diagonal bands marked stair treads. Citizens carried pocket flashlights (with approved diffusing blue screens or filters) and no restrictions were enforced regarding personal noises, whistles, calls or white clothing. Occasionally people ran for as long as 10 minutes to reach a shelter, but even though there were no special emergency traffic police immediately on duty at raid warnings, the public seemed to move as well and as orderly as might be expected in a country accustomed to regulations.

### 6. Precautions and Regulations in Shelters.

a. Each private or cellar shelter had its full quota of gas masks, air-raid-protection tools, and common accessories such as water, sand, and in better homes, bunks and blankets. The senior householder or warden maintained discipline, and with common-sense rules, such as no smoking, there seemed to have been no severe problems of order. Things were not so simple in large public shelters.

b. Upon arrival at a "Bunker" entrance, citizens were permitted to bring only small bundles, no carts or carriages and no animals except "seeing eye" dogs. There were no public shelters for animals. Women with baby carriages were supposed to use a special entrance, if there was one. Small children had to wear address and name tags around their necks. Earlier in the war, some shelters had certain rooms assigned to specific families or a special group, but that system broke down

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under later conditions of crowding. No lockers or hangers were provided, except wall hooks in the better shelters, but most of the people expected merely standing room. Occupants were cautioned not to lean against walls because of transmitted ground shock, and never to leave until the "All-Clear" signal. Actually, about one hour's stay seemed a fair average.

c. In large public shelters with practically no fire risk, the sand and water storage, or quotas of small tools were usually absent. However, large numbers of gas masks were available. On occasions, it seems that collections were taken for charities, or blood-donor operations were used to fill the time. There could be no smoking and "all unseemly" conduct was forbidden.

7. Evacuating Shelters after Raids. The "All-Clear" signal was supposed to start workmen out of shelters promptly. Most people reacted with a species of thankful relief - almost cheerfulness - upon the conclusion of a raid, and were anxious to get out to view damages or get to their own properties. Women and children could spend the remainder of the night, if they so chose, and many did in winter weather, but shelters had to be cleared as soon as possible and cleaned. This was the responsibility of the air-raid-protection police and local wardens. After a raid it was forbidden to use a telephone for at least one hour. No photographs were permitted at any time in or around public shelters.

8. The Over-all Appraisal of Public Conduct and Movement. It had been the hope of the national government to provide safe shelters for all the native public. Although the actual program fell far short of that goal, the public seemed to accept the situation with reasonable complacency. Probably the man in the street did not know his scant margin of safety even when in the best of shelters, or scarcely realized that his shelters were really just extra-strong splinter-proof or fire-resistant structures. Perhaps the German public accepted conditions with a philosophy, such as the British, namely, that their shelter would protect against splinters and incendiaries but all could be destroyed by a direct hit. One simply had to take that chance. Until the great conflagrations, German citizens thought their cellar shelters sufficient; after such events they doubted, and it is likely that, had the war continued, these doubts would have crystallized into distrust and wide dissatisfaction.



XXV. EVACUATION AND POST-RAID EMERGENCY WELFARE

1. Introduction.

a. In view of the chaotic conditions which were brought about by Allied air and ground attacks on German cities and on her transport and communications systems, it is doubtful whether any plans for evacuation and post-raid emergency welfare could have functioned in a completely successful manner. The field survey which was carried out in various bombed cities makes it possible to evaluate and draw conclusions about the relative efficiency that was demonstrated by the several evacuation programs in accomplishing their purposes which were ; to save life and prevent injury, to avoid subjecting non-essential persons to air raids by moving them to relatively safe areas, to provide emergency care and new living quarters for those who had suffered bomb damage or who were bombed out of their dwellings.

b. For the sake of clarity, this report is divided into two sections; (1) evacuation; and (2) post-raid emergency welfare. In each, plans, organizations, and operations are described in sufficient detail to form a background for the evaluations and conclusions. A section of the report of the Morale Division, U. S. Strategic Bombing Survey, contains a detailed study of the effect of evacuation on people, whereas this report covers that subject only to the extent necessary for clarity.

c. No attempt has been made to indicate the number of evacuees who were cared for in GERMANY. Estimates are too inaccurate to be of value and any known figures have been invalidated as a result of the confusion which was caused by the unplanned movements of refugees toward the end of the war.

Evacuation

2. Classifications. The planned evacuation of civilians in GERMANY was divided into two general classifications, namely;

a. Precautionary evacuation to safe areas of special groups whose presence in vulnerable areas was not necessary.

b. The evacuation of persons who were made homeless as a result of air raids.

Those in the former group were encouraged to move, but those whose labor was required were prevented from leaving by restrictions and, if they did, get away, were compelled to return and carry on with their jobs.

c. Precautionary evacuation itself was sub-divided into the following types for which special programs were developed;

- (1) The evacuation of mothers and their pre-school-age children.

- (2) The evacuation of school children between the ages of six to ten years to family care.
- (3) The evacuation of persons to live with relatives.
- (4) The evacuation of pregnant women.
- (5) The evacuation of the old and feeble.

d. Evacuation of Homeless. The evacuation plan for the "bombed-out" (persons whose dwellings had been destroyed or were unusable) provided for whole families, as well as individuals. The facilities which were established to take care of this type also provided a means of caring for persons who left their homes in disorderly flight, as occurred in HAMBURG after the heavy raids of 1943. The centers which were established to provide post-raid emergency welfare were used to re-house and evacuate the "bombed-out". (See "Emergency Welfare" section below.)

3. Responsibility. The Nazi Party assumed primary responsibility for evacuation and also for most post-raid emergency welfare services, because the propaganda value of assistance to people in distress was regarded as high.

4. Agencies. The principal Party agency involved was the National Socialist People's Welfare Organization (Nationalsozialistischer Volkswohlfahrtsverein) or NSV as it will be called in this report. In 1933, it had been given full responsibility for all organized welfare in GERMANY and, prior to the war, it had operated two programs which formed the framework upon which evacuation was developed. These were;

a. The scheme for country holidays for children which became the "Extended Children's Evacuation Program" (Erweiterte Kinderlandverschickung), hereafter referred to as KLV, through which children from crowded areas were sent for limited periods to the country for recreation, health, and as a means of acquainting them with other parts of their country.

b. The mother-child help program through which care was extended to expectant mothers and to mothers with small children. Special care was provided in NSV homes which had been established for the purpose. These programs are described in some detail later in this report.

c. Other agencies which had responsibility or which assisted were;

- (1) Hitler Youth (Hitler Jugend) (HJ), to be called HJ in this report, which shared in the extended KLV program.



- (2) The Teachers' League (Nationalsozialistischer Lehrerbund)(NSLB) which also shared in the KLV until its suspension in 1943.
- (3) The National Socialist Women's League (NS Frauenschaft) (NSF).
- (4) The German Red Cross (Deutsches Rote Kreuz) (DRK) which assigned nurses' aides to KLV camps.

d. Besides the Party organizations many branches of the government participated. After evacuation grew to large proportions, Party funds were not sufficient, so that national funds had to be allocated for the purpose through the Ministry of the Interior. That ministry also controlled the right to commandeer houses and other accommodations necessary in billeting evacuees. The army high command was consulted and had final decision with regard to what areas were to be designated as dangerous areas and which could be considered as safe. For other ministries see the section on KLV.

#### 5. Basis of Evacuation Plan.

a. The basis for the original evacuation plan was the assignment by authorities in BERLIN of a single reception area in a remote part of GERMANY and even nearby foreign countries for each target district from which it was planned to evacuate people. These areas were established geographically on the Party district (Gau) basis. Thus each party district which was designed as a target or evacuation area had a corresponding reception district assigned to it in a remote part of the country. Only evacuees were billeted there who came from the corresponding evacuating district.

b. This policy of establishing reception areas far from the evacuation districts resulted from the fact that safe regions were naturally those farthest removed from industrial or target centers. In the beginning, also, authorities believed that GERMANY would win with ease, and, therefore, as the period of evacuation would be for a short time only, it would be more attractive to people to be sent to the most beautiful parts of the country. In addition, the KLV had sent children to these remote regions before the war, and the practice was continued because no one envisioned any disruption to transportation, communication and supply services. The distance factor, however, between evacuation and reception areas became the principal obstacle to the successful operation of the plan.

c. Later, as the severity of air raids increased, the number of bombed-out persons grew to a point where overcrowding in the reception districts caused additional areas to be established, and those in turn became crowded, so that people were found to be going to areas in which no preparations had been made for them. Even officials were

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forced, on some occasions, to send trainloads of evacuees to unauthorized places. Such action tended to break down control because people who were billeted in areas not assigned to them were subject to eviction by local authorities in favor of those who might be regularly assigned there. The result was that an amended plan was developed which permitted evacuation either to assigned regions in the remote parts of GERMANY, or to nearby unbombed portions of the district in which the evacuees lived. This plan was called "Intra-district Evacuation" (Gauseigene Verschickung).

### 6. Evacuation in GERMANY.

a. It was established that the evacuation programs which are listed above were used throughout GERMANY and that variations in operation occurred from place to place, but only to a minor degree. The KLV program was operative in all bombed cities studied. Although the agencies listed above were active, it was found that in some cities the Hitler Youth organization was dominant under the primary direction of the NS People's Welfare Organization, while, in others, the school administrations played a more important role. It is clear, therefore, that within the over-all plans, considerable latitude was permitted local organization in their methods of operation.

b. Evacuation in the cities studied followed a generally consistent pattern. In the early months of the war there was no government-sponsored evacuation, and only a few people, mostly from the wealthy class, left of their own volition for country homes, relatives, and places of their own choosing. The earliest government evacuation occurred in the summer of 1940 and consisted mainly of removing or rehousing persons who had been bombed out. In addition, the NS People's Welfare Organization evacuated some expectant mothers to Party homes which had been provided for that purpose, and also evacuated small numbers of mothers and young children to places selected by the mothers in the reception areas which were assigned to their respective cities.

c. By the autumn of 1940, BERLIN, HAMBURG and some other cities launched campaigns to evacuate children under the Extended Children's Evacuation Scheme (KLV). This met with varied success, and while about 80,000 children were moved from HAMBURG, other cities which had not pushed the campaign evacuated relatively fewer. The schools did not participate to any great extent in the first evacuations, because it was still believed that the war would be of short duration, and that the children could return before any great loss of schooling would occur. The evacuation was on a voluntary basis, and parents were not generally enthusiastic about permitting their children to leave them.

d. The year 1941 brought increased bombing which resulted in more interest being shown by the people. Schools began to participate by sending groups in school classes with teachers to KLV camps. As raids became heavier, parents also applied in large numbers to the NSV



for evacuation of their children. Authorities felt, however, that there was still an unsatisfactory number willing to send their children away from cities likely to be bombed. Pressure was then brought to bear on parents by prohibiting children who remained at home from receiving instruction after their classes or schools had been evacuated. Authorities also threatened to refuse food cards to children who they felt should be evacuated. However, evidence indicates that this threat was not actually put into practice until the autumn of 1943, when, for the first time, KLV adopted the practice of evacuating entire schools. The raids of 1942 made large numbers of persons homeless. At that time, the plan to send all evacuees from one city to a corresponding reception area began to break down, and people were sent to both distant and nearby areas. During the period of evacuation, confusion was created by the number of persons who returned to their homes after a short stay in reception areas. Many of them, particularly school children, were evacuated more than once. Also, many reception areas which had been considered safe were themselves bombed, and, in turn, people were sent to safety within the same district or to other reception areas.

e. Until approximately August of 1943, KLV functioned efficiently according to an interview with its head. Up to that time about 300,000 children had been evacuated from large urban centers. By the spring of 1944, the KLV camps were no longer able to handle the inrush of children, and the administration of the problem became a function of the intra-district evacuation organizations. It was said that throughout 1944 and until the end of the war "improvisation rather than planned procedure characterized the evacuation of children".

f. The majority of schools in heavily bombed cities were closed by the end of 1943, and by the middle of 1944, the principal problem had become that of re-housing bombed-out persons. That procedure is described in the "Emergency Welfare" section below, and was again a matter of improvisation.

g. From the middle of 1944 to the end of the war, the picture of evacuation is most confused. In addition to the evacuation which was necessitated by continuing air attacks, large movements of civilians were caused by the invasion of German territory both from the east and west. Some idea of this confusion is illustrated by the fact that several cities were found to have been evacuating people to other districts and at the same time were having to care for evacuees from other areas.

h. At the last, orders were issued from BERLIN to destroy all records of evacuation. This was carried out to an extent that made it difficult for authorities to re-sort and return people to their proper localities.

#### 7. The Extended Children's Evacuation Program (KLV).

a. As was stated earlier in the report the extended KLV of NSV

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was developed from the scheme for country holidays for children and it started in 1940 for the purpose of evacuating children from threatened or bombed places. In October of that year, Hitler appointed Balder von Schirach, who was the Reich Leader for Youth Education, as "Führer's Commissioner for Expanded Evacuation of Children to Rural Areas".

b. Schirach organized the program which was the common concern of the NSV, Hitler Youth (HJ) and the NS Teachers' Association (NSLB), and established a central commission in BERLIN which was composed of deputies from those agencies. By agreement, the representative organizations divided their responsibilities for the program and allocated the work in clearly defined fields.

- (1) NSV assumed responsibility for, including the cost of the care of, children up to 10 years of age.
- (2) Hitler Youth (HJ) in collaboration with the Teachers' Association and school authorities had the responsibility of children between the ages of 10 and 14.

c. KLV was built around the use of camps in which children were placed and which were operated by the HJ and Teachers' Associations.

d. School evacuation of the children up to 14 years of age included public schools and the four lower classes of high and middle schools, although in some cases where school buildings were badly damaged, the fifth class was included which raised the age limit in those instances.

e. Children in the age group of 6 to 10 years were sent by NSV to family care homes of NSV or to "foster" parent care, and schooling was either continued in the local schools where crowding sometimes required staggered sessions to be held, or new schools started.

f. The 10 to 14 year old children were usually evacuated by classes or entire schools, although earlier they had been encouraged to evacuate individually under NSV.

g. These various divisions gave rise to two types of KLV camps;

- (1) The so-called "open" camps in which the children were billeted in villages with families or in "homes", and all met together for classes at the local school or in some appropriate building.
- (2) The "closed" camp which was usually in an inn, boarding school or some similar place and which was adequate both to house the children and furnish school accommodations.



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8. KLV Procedure. The work of the KLV was organized in the following manner.

a. At the national level, the German commissioner for KLV, his deputy and associate workers of the three primary agencies worked in his association with representatives of ministries which had jurisdiction in matters pertaining to KLV. They were; the Ministry of the Interior, Ministry of Food and Agriculture, Ministry of Commerce, Ministry of Culture and Education, and the Ministry of Finance. The National Management of Railroads also assisted.

b. At district (Gau) level a district commission of KLV was established under a commissioner (Gaubeauftragter KLV), who had associated with him the party district local administrator (Gauamtsleiter NSIB), the district leader of HJ (Gebietsfuhrer HJ), the chief Party district administrator of NSV (Gauhauptamtsleiter NSV), augmented by district workers from the railroad administration, farm supply officer and others. There was also attached to this office a KLV representative of the district from which evacuees were sent to camps. For every county in reception areas the district commissioner appointed a county (Bann) commissioner of the KLV who had immediate supervision of the camps.

c. The camps were organized as follows: chief camp leader, HJ camp leaders, nurse's aide, household manager, cooks, teaching corps, and HJ camp student leaders completed the staff. If it were a girls' camp the HJ was represented by HJ girl leaders (Lagermaedelfuhererin). A control unit consisting of a KLV inspectorate was maintained at district (Gau) and county (Bann) level. (NOTE: The Teachers' Association was suspended in March, 1943, and the Ministry of Culture and Education and the district and local education administration became influential in KLV camp activities.)

9. Operation. Briefly the operation of KLV was this:

a. At the national level, the selection of education and reception areas was determined by the central commission after consultation with the army and other ministries as has been described. The decision was transmitted to the Party district leaders (Gauleiter) whose districts were affected, and they, in turn, notified the proper authorities, such as district representatives of NSV, HJ, and school administrations. Local practice varied but not in any essentials. It was the district leader's responsibility to decide what evacuation was necessary and when. As in one of the cities covered by the survey, the district leader acted upon the advice of the school administration which, in turn, was in consultation with a city committee of which it was a member along with NSV, Hitler Youth, and a representative of the school children's parents. Hitler Youth always played a prominent part because of the party's prestige and the fact that much of the administrative control and funds of KLV were in its hands. With delegated authority from the district leader, the school administration advised the Hitler Youth

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when schools should be evacuated. The HJ then contacted the school director which, in the case investigated, was done through the mayor, and gave him the details of when and where. In preparation for the move, the HJ which operated "travel bureaus" where lists and detailed information about estates, hotels, camps, boarding schools were maintained, called in the directors of the schools in question and a selection of accommodations was made. The consultation with the director was more or less a matter of form with final decision resting with HJ. However, the reception area KLV representative from the evacuation area in which the school was located usually had some knowledge and influence in the selection. Hitler Youth would then call a meeting of parents of the school children and of the faculty to explain the necessity and desirability for evacuation, and through well known propaganda methods enlist their aid and consent to the evacuation which was on a voluntary basis. Printed matter and details of the evacuation were sent through school children to their parents. The forms were standardized throughout GERMANY, although minor variations were found from city to city. Physical examinations were given prior to acceptance of children for evacuation and, in most cases, children were immunized for such diseases as scarlet fever, diphtheria, and typhus. Parents were responsible for getting their children to the collecting or departure point with full equipment, including enough prepared food for the journey.

b. Transportation, always by railroads when long journeys were required, was arranged by HJ and the journey was made under its control and with HJ leaders in charge of the children enroute. Costs of the journey were met by KLV funds.

c. While the evacuation of the children was maintained on a voluntary basis until late in the war, the teachers had no choice and were required to accompany the schools or classes to the camps, and to remain with them. Either the school director or a deputy went along when evacuation of an entire school was concerned. In all cases the salaries of accompanying teaching staffs were paid by the school administration of the area evacuated.

d. The typical KLV camp was organized and operated as follows: the school director who accompanied the school was the chief camp leader, but he was responsible only for the continuation of schooling, and therefore was in charge of only the class work and teachers. The administration of the camp, which included authority over the children in matters of discipline, and all activities and time outside of prescribed class and study periods, was in the hands of the HJ leader, who was usually a youth from 15 to 18 years of age. He was also responsible for the teaching of Nazi philosophy and doctrines to the children. Each house of a camp (usually a camp consisted of several) had a teacher as leader and also an HJ camp student leader. The duties of those two within the house were similar to those of their respective chief camp leader and HJ leader.



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e. Housekeeping responsibility, including the procurement of food and other supplies rested upon the proprietors or operators (Lagerbewirtschafter) of whatever establishment the camp occupied. In the event no operating staff was at the camp, the KLV commission provided it through its county commissioner and HJ. The school children usually assisted with the housekeeping chores such as making their own beds and washing dishes, but their duties varied from camp to camp.

f. The food supply was under the ultimate control of the Ministry of Food and Agriculture in BERLIN, and from that ministry there were issued, through the district and county food offices down to the operators of the camps, instructions in which required diets were set forth, practical handbooks, and ration instructions. The basic theory of the Food Ministry in the supply of KLV camps was to have the operators avail themselves of local food supplies and facilities under the established ration system. In that way, no drain on central warehouse supplies was made until all other sources were exhausted and then the distribution was made to existing shops and markets rather than directly to the camps.

g. Medical and health services of the camps were administered from KLV district and county offices by medical doctors who made periodic inspections and who were on call as needed. A Red Cross Nurse's aide was attached to each camp and was responsible under the KLV medical doctors for camp hygiene, sanitation, and first-aid treatment. She remained under the administrative direction of the district Red Cross director.

h. Full details of finance methods are not available in English translation. The cost of camp operation, except teachers salaries, was paid from KLV funds in the control of the district office. They, in turn, were allocated from the national level through the national paymaster from funds allocated to KLV by the Party. Later, as the evacuation problem grew, government funds were supplied through the Ministry of the Interior. Each camp had to submit vouchers for purchases made before the monthly ration cards could be validated for the next month's purchases, but how detailed a financial accounting was required was not learned.

i. There exists no reason to doubt that the KLV camp program was successful as a physical means of removing children from dangerous areas. As far as health conditions are concerned, the record seems good. Only isolated cases of contagious or infectious diseases were found recorded.

j. Discontent which was evident among many of the children was the result of long separation from parents and worry over their welfare. It may also have developed as a result of the basic and jurisdictional difficulties which were common between the teaching staffs and Hitler Youth leaders and which must have been evident to observant children.

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k. The relationship between the Teachers' Association and Hitler Youth is of major importance in KLV, because differences were major factors in the ultimate suspension of the Teachers' Association as well as the main cause of strife in KLV camps. The difficulties between HJ and the teachers dated from the early days of the war when KLV camps were being used on a modest scale under the direction of HJ. Assistants in the camps, chosen from members of the teaching profession by the Teachers' Association, were given leaves of absence by the State for that purpose. To quote from an interrogation of a KLV official, "the unfelicitous phrase of Baldur von Schirach who said, 'Youth can only be led by youth' was here placed in practice, and it cannot be described how many battles, arguments and recriminations derived from this." Several factors entered the problem. The teachers were, as a rule, much older than the Hitler Youth leaders who controlled the camps and who, in many cases, were too inexperienced in the work. Also the fact that the discipline of the children was in the hands of the HJ and when problems arose between the school child and the teacher, the HJ leader generally sided with the child. Such action tended to destroy the prestige and influence of the teachers. In addition, the HJ apparently undermined the teaching because of their incessant demands on the time of the children for work in the camps, for drill and many other extra-curricular activities. The result of this strife was that the influence of HJ was sufficient to cause the Teachers' Association to be suspended for the duration of the war. The controversy apparently made KLV top authorities, other than HJ, realize the limitations of the HJ camp leaders. In consequence, a new set of service regulations (called KLV 1a) was promulgated which placed the Education Ministry in top position with the camp leader (teacher) in sole charge and the camp student leader subordinate to him. There was not time to set the revision in operation before the end of the war, although the same end was achieved by the fact that most of the HJ camp leaders were called into military service or ran away with the approach of the Allies, leaving the teachers in charge.

l. The attitude of the Party toward religious teaching was of great importance in the resistance of parents in sending their children to KLV camps. Schirach, according to his own statement, "advised Hitler in 1940 that if the evacuation of children was to proceed successfully, non-interference with religious practice was essential. Hitler agreed." If that were true, the Hitler Youth defied orders, for at many camps no religious teaching was permitted and there was evidence of interference by the HJ leaders in others where religious meetings were held.

m. There is also evidence that many teachers, because of their greater maturity and experience, were able to influence the children and circumvent the detrimental influence of HJ camp leaders.

n. During the last six months of the war, difficulties in the camps became more pronounced because HJ received orders that children born in 1928 were to be sent to the storm troops (SA) for training



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of one year when they would be formed into combat division. In March of 1945, orders were received that HJ was to encourage the children to join the "Werewolf" movement. At the time of this survey, there was little evidence that this move was successful in gaining the support of the children. Again there were instances when the teachers were able to prevent cooperation on the part of the children.

10. Other Precautionary Evacuation Programs. The other precautionary evacuation programs which were mentioned earlier, include those for mothers and small children, the old (women over 55 and men over 65 years of age), feeble persons and pregnant women. They were all a responsibility of NSV, both for sending them to reception areas and providing for them during their stay and return.

a. Again, the programs were voluntary in nature until late in the war when authorities in many places ordered evacuation of all but the people who were needed to maintain essential services or who were required to help defend that area against Allied ground attack. The persons in the categories above were considered non-essentials. Attempts by the authorities to force compliance with the evacuation order took the form of refusal to issue food cards to children under 14 and adults over 65 years of age.

b. The methods of evacuation operation have been described in field reports and they followed a consistent pattern throughout GERMANY with minor local deviations. A brief summary of operation methods and organization of NSV for handling evacuation of the above groups follows; At the national level, NSV, in consultation with military authorities and others, designated districts which were to be considered as evacuation areas, and allocated to each of them corresponding reception or safe areas. The same policy of sending people long distances as was described under KLV was adopted for these programs, and the same problems were present. Later, as the number of evacuees became large, nearby communities in the evacuation district were used. On paper, at least, the policy was established that mothers with both pre-school-age and school-age children should be sent to the same locality as her school-age children who had been evacuated by KLV or NSV. However, that policy was not enforced and there is evidence that the Hitler Youth opposed it.

c. At district (Gau) level, the district office and leader for NSV (Gauamtsleiter) was in charge of a staff of paid and volunteer workers. The employees of the affected civil administrations assisted along with NS Women's Organization.

d. Persons were evacuated by special trains in groups and as individuals, both to relatives and to billets which had been assigned them or, in the early part of the war, to places of their own selection.

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e. If the evacuee wished to go to a relative, it was necessary to secure and submit a signed form from the relative stating his willingness to provide accommodations. In all cases it was necessary to secure a release from the local labor office and then apply with it, plus identity card and ration book, for an official departure certificate. The evacuee was supplied with a travel certificate which could be exchanged at the station for a railway ticket. It was permissible to ship some household goods by arrangement with the NSV.

f. Pressure was applied by radio and press to secure the co-operation of the public for evacuation. When a sufficient number had signified their willingness to go, information concerning the numbers and types of persons was sent to BERLIN headquarters which notified the reception district NSV office through the district leader (Gauleiter). That office then made the necessary preparations to receive the given number. They included the allocation of persons to specific towns or communities, and often a representative of the particular reception town was sent to escort the evacuees to their destinations.

Previously the NSV had made a survey of the rooms and other suitable accommodations in the area. It was necessary for NSV to secure permission from the district (Gau) and county (Bann) leaders before rooms or houses could be requisitioned. The NS Women's Organization frequently supplied assistance in the way of food and help to mothers with small children as did the Hitler Youth (Girls' division).

h. A copy of the departure certificate was retained and used by the evacuee in the reception area to obtain money, food and housing. Not until notification of arrival in the reception area was a person checked as having been evacuated from his place of origin.

i. At the reception town the people were allocated to specific private homes and some attempt was made, initially, to see that "host" and "guest" were congenial. Much readjusting was required before all cases of incompatibility could be satisfactorily settled.

j. Careful attention was given to the welfare of both the evacuees and their "hosts" in reception areas. Women with several small children could receive help from the NS Women's Organization, in the form of assistance in looking after the children, sewing, washing and bathing.

k. Many towns provided clinics to which evacuees could go. Unwell mothers and sickly children were sent to special NSV homes for periods of treatment and recuperation. Expectant and nursing mothers were provided with special food. Community restaurants were established when hotels and billets were unable to serve adequate meals. NSV maintained stocks of clothing and some household utensils and supplies for the use of evacuees who arrived unequipped.



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1. Evacuees received about \$1.20 (RM 3.00 per day which covered the cost of food, lodging and incidentals. There are instances where towns paid the difference between higher costs of food in their community kitchens and the amount of monetary allowance.

m. Evacuees with private means were required to pay, and husbands who remained at work and continued to earn adequate incomes were obliged to send funds for the support of their evacuated families. However, any expense over and above normal living which resulted from evacuation was paid by NSV and later by the national government.

n. Education of evacuated children from 6 to 10 years old was continued in the local schools.

o. Recreational activities such as sports, lectures, and dancing were sponsored locally for evacuees through the propaganda office in an effort to speed up their assimilation into the life of the new communities. This was not always easy. Even though they understood the necessity for the presence of evacuees, the local residents frequently resented the influx of strangers. Misunderstandings occurred as the result of language difficulties, character and habit differences. Trained workers who were familiar with these conditions were sent along by the evacuation area authorities to alleviate this problem.

### 11. The Evacuation of Bombed-out Persons.

a. This program was also the responsibility of the NSV. The mechanics of it were very similar to those just described. The fact that this form of evacuation provided for the moving of persons who were forced because their homes had either been destroyed or rendered unlivable, places it in a category with post-raid services. As raids became progressively heavier, greater numbers of homeless persons were created. Emergency welfare centers or collecting stations as they were called, were set up from which all immediate post-raid services to the bombed-out or bomb-damaged could be dispensed. Arrangements for evacuating the bombed-out were frequently made from these stations, particularly after heavy raids when large numbers required moving immediately. The stations will be described in the "Post-Raid Emergency Welfare" section below.

b. With the increase in intensity and frequency of raids, transportation became difficult, reception areas were overcrowded, and evacuation began to get out of control. As a result, in addition to evacuation to distant reception areas by train, the bombed-out were evacuated to rural districts and small towns near the bombed city and were moved there by truck, bus or any available means of transportation.

c. The catastrophic element was great after heavy raids when huge numbers of people needed to be moved from the attacked city immediately.

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Under difficult working conditions it became impossible to register and keep track of who was sent or where they went. As a means of meeting this problem at HAMBURG, every resident was required to carry on his or her person a completely filled out departure certificate ready for use in case of need. In that way, individuals in great numbers could be checked as they boarded their transportation and their destinations recorded upon the stub which would be collected by the checker and filed. The certificate indicated whether the person was occupied in essential work or whether he was non-essential and could leave.

d. Evacuation within the district (or Gaeuigene Verschickung) was the result of the need to house people quickly and it was used when transportation to distant reception areas was difficult and there was overcrowding in those areas. No particular change of method was necessary.

e. The Ministry of the Interior was responsible for "billeting", and under it entire families were moved and parts of bombed cities resettled. After heavy raids when large numbers of persons were moved and cared for, it became an academic question whether a person was being evacuated or rehoused.

### 12. Comments.

a. Evacuation was successful as a means of saving life and preventing injury. It can also be assumed that from an emotional point of view, persons benefited by not being subjected to heavy bombings. Against this the serious problems which arose because of long separations of families and worry concerning the safety of members of families who stayed at home detracted from the advantages of evacuation.

b. The evacuation policy of sending persons to distant reception areas did not allow for the possibility of the eventual breakdown of transport, communication and supply systems, upon whose smooth functioning the success of such a policy was dependent. Those services were necessary in order that members of families could maintain communication, pay visits and ultimately be reunited. After the breakdown of these facilities, larger numbers of people traveled under great hardship in an effort to find children and parents. This added considerable confusion to problems which faced military authorities and accentuated the absence of resettlement bureaus where inquiries and information about missing persons could be centralized.

c. The later policy, which kept evacuees in the same district as the city from which they came, avoided many of the difficulties, although housing was generally inferior to what was available in the remote reception areas.

d. Before any decision of preference is made between the practice of evacuating people to nearby or distant reception regions, it



should be borne in mind that had the former been adopted for early precautionary evacuation, it would have filled up the bombed areas and people would have had to be sent long distances at a later time when all the difficulties of transport and other services were becoming most acute.

e. Given a choice, most people preferred to remain near their homes and accept both poorer accommodations and added danger than to go to distant reception areas. Some causes for this preference are as follows;

- (1) People were afraid of the unknown living conditions which they would meet in distant places.
- (2) They did not like the necessity of adjusting themselves to language and custom differences.
- (3) They feared separation from family and friends.
- (4) When air raids became heavy and were reported as affecting all parts of the REICH, people could see no safety in moving long distances.

#### Post-Raid Emergency Welfare

13. Responsibility. The care of bomb-damaged and bombed-out persons in GERMANY was the responsibility of the NSV which worked closely with branches of city administrations and other Party agencies. Relief was organized on a city-wide basis and mutual aid between communities was much in evidence.

14. Operational Technique. Post-raid relief plans had been carefully laid before the war but practical experience gained during raids resulted in many revisions and improvements in operating techniques. It was observed that best results were obtained in those bombed cities where the plans were flexible, and, most important, where welfare and service workers had been trained so thoroughly in their particular jobs that they could work in the midst of great confusion without supervision or direction. This factor was important because very often collecting stations were isolated by debris or broken communications and, as a result, the workers were completely dependent upon their own initiative. Without exception, plans had to be revised in order to decentralize operating control which could not be maintained during and after heavy bombing attacks.

15. Collecting Stations. All relief measures which were put into operation immediately after each attack were supplied at collecting stations. In them, each party or municipal agency that had any responsibility for relief was represented by its workers. Thus the victims of air raids did not have to spend time and energy in seeking assistance in widely separated offices.

16. Organization of Collecting Stations. The typical organization of collection stations included representatives of the following agencies;

a. For the City:

- (1) Food Office (Ernährungsamt) to distribute such things as ration cards, clothing coupons.
- (2) Billeting Office (Quartieramt) to supply rooms, apartments and houses for bombed-out persons.
- (3) War Damage Office (Reichskriegschadamt) for the distribution of cash assistance and clothing.
- (4) City Building Office (Bauamt) for emergency repair of homes and to supply temporary repair materials.

b. For the Party:

- (1) NS Welfare Organization (NSV) to handle and administer the work of the collecting stations, issue bomb-passports, give advice and information to the bomb-damaged people.
- (2) NS Women's Organization (NSF) to help with the preparation and serving of food and other services such as caring for children.
- (3) German Red Cross (DRK) to provide first aid (see the "Emergency Medical section).
- (4) NS Motor Corps (NSKK) to transport food, persons, and to haul salvaged furniture and other belongings.
- (5) Hitler Youth Maidens (BDM) to assist in first aid, cooking and other services similar to NSF.

Usually the service organizations listed above were organized into three administrative levels within the city which were: city, district (Kreis) and local (Ortsgruppe). Frequently, operating staffs of the agencies were also organized at the three levels and their leaders met in conference after air attacks and determined together or advised the Party leader, if he was in charge, what relief measures were required.

17. Operation.

a. The operation of post-raid relief usually took the following course. The collecting stations were in schools, taverns, restaurants, halls or similar places and their locations were known both to the workers and to the people of the neighborhood. In large cities these were divided



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into three types according to their use and location:

- (1) Primary or small stations were in the heart of the city where most damage could be expected to occur, and to which those in the immediate vicinity could go quickly to receive assistance.
- (2) Main stations were usually located in the suburbs or away from the most thickly populated districts and could service large numbers of persons who would collect there when primary stations had been hit or were inadequate to fill the needs.
- (3) Country collection stations were located away from the city in nearby communities to which people could be taken for temporary feeding, housing and care and from which food and other assistance could be sent into the city.

b. After a raid, the local party leader (Ortagruppeleiter) determined which collecting stations should be opened immediately. The local representative of the other agencies on his staff notified their district (Kreis) offices and those offices sent their workers to the appropriate station in accordance with pre-arranged mobilization plans. Workers at the station were secured from regular social administration personnel, or were volunteers and employees from other non-emergency departments, such as school and finance.

c. One of the techniques was to have the workers carry with them their own kits containing all the needs of their particular jobs, such as forms, pencils and the like.

d. At the collecting station the person requiring assistance could receive any or all of the following:

- (1) Hot drink and a light meal.
- (2) A bomb passport which became his identity card and upon which was indicated the extent of his losses, recommendations for evacuation or other action.
- (3) Cash assistance with which to buy food, household goods and the like.
- (4) Rehousing or billeting and temporary sleeping accommodations.
- (5) Assistance in filing application for bomb-damage and other relief (this became a case history).

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- (6) Emergency food and clothing coupons and reissue of ration books.
- (7) Tickets entitling him to secure food for about three to four days without cost or coupons.
- (8) Emergency storage of furniture and household goods from his damaged dwelling.
- (9) Assistance in securing minor repairs or materials with which to repair his home.
- (10) Family consultation and advice.
- (11) Assistance in locating lost or missing persons.
- (12) Departure certificates prior to evacuation.
- (13) Evacuation or relocation, if needed or desired.

NOTE: For burial service see "Emergency Medical" section.

Early in the war when raids were not too severe, the post-raid services functioned easily within the cities. As raids increased in intensity and damage became widespread, the work had to become decentralized and much of it operated from outside the city itself. For instance, after the great raids on HAMBURG, HANOVER, and COLOGNE, people were transported to collecting stations outside those cities and from there evacuated or resettled.

e. Community kitchens were set up outside the cities and hot food sent to more centrally located dining rooms in schools, restaurants and similar places. Relief trains and convoys were sent in. (See section of report on "Mobile Reserves".)

f. Mutual aid became an important service to a bombed city and this help was established so that in the event communication broke down, the assistance would be sent without waiting for the requests.

g. The so-called "Rendezvous Point" or "pilot Station" was a village or road junction where incoming assistance units and supplies could receive directions concerning where help was most needed. These stations were kept informed by radio, telephone and couriers.

### 18. Comments.

a. A large city can be paralyzed by heavy air attacks. The programs to decentralize foodstuffs, household goods, and furniture were most essential and the reported lack of cooperation on the part of shop owners, produce and warehouse people was to the disadvantage of the communities.



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b. An observed fact was that people had a great reserve of ingenuity in being able to fend for themselves after air raids. Many resisted attempts to make them relocate or evacuate, or if they did go, they frequently returned within a few days and lived under most difficult conditions in cellars, air-raid shelters and the like. The efforts of authorities to force them to go by refusing them food cards showed the presence of widespread black market activity. The refugees were able to patronize it because they usually had funds from the settlement of damage claims which had been on a liberal scale when the national government publicized the fact that the Allies would have to pay for it ultimately.

## XXVI. TRAINING OF CIVILIAN DEFENSE PERSONNEL

1. Origin. During the years 1932-33, the air-raid-protection services in GERMANY were being formed, and from the first it was realized that great care would have to be exercised in the selection of the personnel, and in the arrangements made for their technical training. As far as possible, personnel was recruited for the new services from members of the civilian population who already had some training in the work they were to undertake, as, for example, the formation of the rescue service (Instandsetzungsdienst) from the technical emergency service (Technische Nothilfe). This, however, did not cover the problem and a series of national schools (Reichsschulen) was set up, each dealing with one subject in air-raid protection. These national schools were limited as to the numbers they could instruct at any one time, and their syllabi were devised to deal with the high officials of the service concerned and with the instructors to be used at a high level.

2. General Organization of Training Schools. Below the national schools, a complete organization of training schools was set up, covering the entire country. Immediately below the national schools were the provincial group schools (Landesgruppenschulen). Next came regional schools (Gauschulen), and below them came the air-raid-protection high schools (Luftschutzhauptschulen) opened in all large cities. At the provincial schools, activities were very largely confined to training teachers for the regional schools and the city high schools.

3. National Air-Raid-Protection Schools (Reichsluftschutzschulen). The following is a short account of the national air-raid-protection schools in GERMANY, giving their locations and some details of their functions.

a. An air-raid-protection academy (Luftschutzakademie) was set up in Kesseldorfer Strasse, in BERLIN. It dealt solely with the training of the higher officials of the air-raid-protection police (Luftschutzpolizei). Courses lasted for 14 days and included instruction in all branches of air-raid-protection measures, and in the administration of the services. The premises at Kesseldorfer Strasse were destroyed by bombing and the school was immediately reopened in the Luisenplatz, ORANIENBURG, just outside BERLIN.

b. The National Industries Group (Reichsgruppe Industrie) opened a national school for the training of leaders of industrial air-raid protection at the Central School of the National Industries Group (Centrale Schule der Reichsgruppe Industrie). This school was located at 26A Goethe Strasse, BERLIN, W. Courses varied in length from 14 days to six days. Instructors were also trained for the factory air-raid-protection schools (Werkluftschutzschulen) which were opened in all the large cities. This national school had a very good reputation and was well regarded by all who had attended it.



c. The technical emergency service (Technische Nothilfe) conducted a national training school at BELZIG, BRANDENBURG, for the training of its own personnel and also rescue party (Instandsetzungsdienst) leaders and assistant leaders. Courses lasted for four weeks and during the last 18 months of the war, a great deal of the time was spent in giving instruction in the demolition of damaged buildings by explosives. No copy of the school syllabus is available. Reports as to the efficiency and general value of this school to the rescue service varied. There was some criticism that the men were only taught things which they already knew, but a majority of the persons questioned considered that the school had performed valuable service.

d. The fire service in GERMANY had a national training school for its higher officers established at EBERSWALDE, northeast of BERLIN. Originally this school was intended only to carry out the advanced training of fire officers, but, under war conditions, it became impossible to keep up the supply of junior officers in the service. At the end of 1944, it was therefore decided that high ranking non-commissioned officers (Oberbrandmeister and Brandmeister) should be admitted to the school for a course of training specially designed to prepare them to be officers. Examinations were held at the end of these courses and those passing were given commissioned rank in the fire service. All reports on this school agree as to its excellence, both in training and in administration.

#### 4. Provincial, Regional and High Schools (Landesgruppenschulen, Gauschulen und Hauptschulen.)

a. For the training of the fire-protection police (Feuerschutzpolizei) 29 provincial fire-fighting schools were opened throughout GERMANY. These schools dealt with the training of junior officers and non-commissioned officers and also with that of the leaders of the volunteer fire departments (Freiwillige Feuerwehren) which had been established all over the country. The training of the rank and file of the volunteer fire departments was carried out locally under arrangements coordinated by the chief of the fire service. An interesting development in fire training was the setting up of a special school in TUCHELER HEIDE, POMORZE, POLAND, where a complete town was constructed with every type of building represented. Large numbers of men of the German fire service have been through a four-weeks course in fire fighting at this school.

b. The National Air-Raid-protection League (Reichsluftschutzbund) established provincial group schools in every province to provide instructors for the local air-raid-protection schools in the cities.

c. The National Industries Group (Reichsgruppe Industrie) established regional schools in nearly all large cities. The schools were known as factory air-raid-protection schools (Werkluftschuttschulen) and they were all affiliated with the Central School established in



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BERLIN. The subjects taught included the usual air-raid-protection measures, and in addition, the particular problems arising in industry. Instructors of this school were trained at the Central School in BERLIN. These schools were exceptionally well equipped and staffed and were capable of giving complete instruction in every phase of factory air-raid protection, including the training of factory fire brigades. All large factories had to be able to deal with their own incidents and were allowed to call for assistance from the town services only in case of real emergency. In consequence, the firms took great interest in their own local regional training school, and, if money were required for additional equipment, it was always forthcoming, or one of the firms made the equipment and presented it to the school. Courses originally extended over five to six days but toward the end of the war, courses, other than fire-fighting courses, had to be cut to three days in many places, as men could not be spared from their work for longer periods. Every effort was made to keep the courses up-to-date. As the saturation raids became more and more severe, it was realized that some of the rules laid down in the textbooks could no longer be applied. To meet this new situation, many of the lectures were given by men who were called in from one of the blitzed towns. They gave an account of their experiences and stated what they had done to meet the actual situation. In that way, the latest information was made available. The personnel attending these courses were the officers in charge of the different factory air-raid-protection services (Werklufschutzleiter) and the leaders and assistant leaders of the several services. Refresher courses were arranged at frequent intervals. All reports on these schools have agreed regarding the excellence of the instruction given and the general administration.

d. The air-raid-protection police (Luftschutzpolizei) opened high schools for the training of the rank and file of the air-raid-protection services in their own areas. The instructors in these high schools (Hauptschulen) were trained at the air-raid-protection academy in BERLIN, thereby insuring continuity and standardization of training throughout GERMANY. The syllabus of instruction covered all aspects of air-raid-protection measures; rescue, first aid, fire fighting, decontamination squads, gas protection, and the veterinary service. Courses lasted from four to five weeks, and it would appear that in the larger cities, at any rate, they were efficiently managed. The numbers attending these schools at any one time varied up to a maximum of 300 at HAMBURG. In that city two or three different courses would be run simultaneously. It was the general practice to issue certificates of efficiency and men who failed to achieve the required standard could not be employed as leaders until they had had further training at the local high school.

5. The Technical Emergency Service (Technische Nothilfe). Leaders of this service were sent to the national school at BELZIG for advanced or special training in rescue work or demolition, and to the local air-raid-protection high schools (Luftschutzschulen) for general air-raid-protection instruction. The service formed the basis of the German



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rescue service, and it served as an immediate reinforcement available at very short notice. Training of the service in air-raid-protection duties, and rescue work in particular, continued throughout the war. Exercises were held regularly up to 1943 in conjunction with the rescue service and other air-raid-protection services. In most places exercises had ceased by 1944 especially in those areas under heavy attack.

6. The Rescue Service (Instandsetzungsdienst). Since the original personnel was already technically trained, that fact greatly eased the early problem of training, as it was only necessary to give a full course of training to the remainder of the personnel. This procedure could not, however, be kept up after 1943 and there was a fairly rapid deterioration in the quality of the men joining the service. Toward the end, unskilled labor was being accepted to keep the numbers up to requirements and that was occurring at a time when the training of the personnel was meeting with much greater difficulties. In addition, the average age of the men in the rescue service was rising rapidly. It is certain that from 1943 onwards the efficiency of the rescue parties was depreciating continuously. Efforts undoubtedly were made to keep training going, but it was not on a large scale. The only training that some of the men had was in the school of experience.

7. The Fire-protection Police (Feuerschutzpolizei). Before the war, officers were selected for the fire services from graduates of high schools. They were given a year's training, three months in each of three different towns, with a final period of three months at the national fire school at EBERSWALDE. If they passed their final examination they were given commissions in the fire service. They were chosen with special regard to their physical fitness and were trained in the fire stations in which they were working. By a decree dated 23 November 1938, the fire-protection police force (Feuerschutzpolizei) was created. Approximately 90 of the larger German cities and towns were ordered to organize these forces and to transfer their regular fire-fighting services to them. In addition, the new fire police force took charge of the voluntary fire departments and assumed complete responsibility for their training. This was carried out locally, with the exception of leaders who might be sent to the nearest regional fire training school.

8. The Women's Service (Frauenshaft). This service was organized with a national woman leader (Reichsfrauenführerin) at the head. The whole country was divided into regions (Gaue), the area corresponding to a Nazi Party district. Each region was commanded by a regional woman leader (Gaufrauenschaftleiterin) and the lower organizations were headed by a county woman leader (Kreisfrauenschaftleiterin), a local women's leader (Zellenfrauenschaftleiterin) and a block women's leader (Blockfrauenschaftleiterin). There was practically no selection of personnel and no training in this service. Any woman was eligible for the service which had a total estimated strength of 4,000,000. The

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tasks carried out were those that required organization but little training, such as cooking of food for homeless after raids, caring for children and general welfare work.



## XXVII. TRAINING OF GENERAL PUBLIC

1. policy. The birth of the idea of informing and training the public in GERMANY in air-raid-protection measures took place many years before the war began. As the plan developed, the policy of requiring the direct cooperation in the work of forming an air-raid-protection service became well established, with a view of bringing home to the public its duties in regard to making provisions for its own defense against air attacks.

2. Principal Agency. The principal agency concerned with the training of the general public was the National Air-Raid-Protection League (Reichsluftschutzbund) whose development, responsibilities and functions are discussed in Section III, paragraph 8a (7), of this report.

### 3. Training Organization of the National Air-Raid-Protection League.

a. In order to carry out its mission of making the people of GERMANY air-protection minded and of strengthening their will to resist air attack, the League organized the training of the public and arranged for its instruction in air-raid-protection matters, both theoretical and practical, including fire fighting, gas protection, and first aid.

b. The League likewise undertook all work in connection with the distribution, fitting, and sale of the civilian anti-gas respirator.

c. League training schools were organized throughout GERMANY. At the head of them all, a national school was opened at WANSEE near BERLIN. Then came provincial schools (Landesgruppenschulen) opened in every province. In the larger cities the air-raid-protection high schools (Luftschutzhauptschulen) were opened. At the lowest level, came the air-raid-protection schools opened in every police precinct (Revier). In 1939, the National Air-Raid-Protection League had 28,000 trained teachers and operated 3,800 air-raid-protection schools.

4. Functions of the Training Schools - The National School (Reichsschule). The national school was opened at WANSEE for the purpose of training the higher officials of the National Air-Raid-Protection League. Principals and instructors of the provincial schools (Landesgruppenschulen) and in some cases of the city high schools (Hauptschulen) received their training at this school. The premises occupied by the school at WANSEE were taken over by the National Air Ministry (Reichsluftfahrt Ministerium) and the school was then transferred to JENA.

5. Provincial Schools (Landesgruppenschulen). In every province a provincial school was opened. The main objective of these schools was to train instructors for the high schools opened in cities and for

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the air-raid-protection schools opened in every police precinct (Revier). Courses lasted a week and covered all aspects of air-raid-protection measures, rescue, first aid, chemical warfare, and all measures for self-protection (Selbstschutz). These schools have had an excellent reputation in GERMANY and there has been practically no criticism, either of their syllabus of instruction or of their formal organization and administration.

6. High Schools (Hauptschulen). In the larger cities further arrangements had to be made for the training of instructors and of the wardens' service, as the provincial schools were unable to deal with the large number requiring instruction. In these schools the instruction frequently took place during the evenings. Full courses were held for the training of the house wardens (Hauswart) and block wardens (Block wart) and these wardens were required to pass on the instruction they received to the small sections of the town for which they were responsible. Refresher courses were not held at regular intervals, but whenever they were considered to be necessary. Instructors for the air-raid-protection schools in the police precincts (Reviere) were also trained in these schools. The men who gave the instruction had been trained in the national school at WANSEE, or in one of the provincial schools.

### 7. Air-Raid-Protection Schools (Luftschuttschulen).

a. It was in these schools that instruction in air-raid-protection measures reached the public. In every police precinct (Revier) an air-raid-protection school was opened. In some places the instruction was carried out in the local police station, and in other places, educational schools were used for the purpose. This could be done as classes were held in the evenings, unless women only were concerned, in which case they sometimes took place in the daytime.

b. It was made compulsory for the public to attend for so many hours each year, the number varying according to the vulnerability of the area. The police were responsible for getting the public to the classes and each person carried a card on which were recorded the details of his or her attendances. In the larger cities these classes were held on five nights in each week and refresher courses were held frequently. Any information in regard to new methods of dealing with old weapons, or instructions as to how to deal with new ones, was passed to the public through these schools, in addition to the instructions given to every member of the public in the necessary measures to be taken for his own self-protection (Selbstschutz).

### 8. Self-Protection (Selbstschutz).

a. The whole object of the passing of information to, and the training of, the public in air-raid-protection matters, was to teach them to take care of themselves. The term "self-protection" (Selbstschutz)



was used to express this meaning and a complete syllabus of instruction for the public was prepared, specifically designed to spread the work of dealing with air raids over as large a number of persons as possible. Every man and woman had to take the basic course of instruction which dealt with choice and preparation of shelter in every house, defense against chemical warfare, first aid, fire-fighting measures, and organization of the local air-raid-protection system.

b. The main objective of the program of the National Air-Raid-Protection League was to spread this gospel of self-protection as widely as possible and to train the public in its duties. The intention was to reduce casualties from air attack and to make the public self-reliant and thereby ease the work that would necessarily fall on the air-raid-protection service.

c. Women took an ever-increasing part in this work, frequently taking over the duties of house and block wardens. Their other duties were many and varied, especially in regard to the welfare of women and children.

9. Extended Self-protection (Erweiterter Selbstschutz). The National Air-Raid-Protection League took over, whenever required to do so, the training of persons to carry out the duties of extended self-protection.

10. The Siren (Die Sirene). To implement and coordinate its instruction the National Air-Raid-Protection League published "The Siren" (Die Sirene), a fortnightly paper, containing nothing but articles on air-raid-protection matters of interest to the public. It was profusely illustrated with photographs and drawings.

GLOSSARY OF GERMAN  
CIVILIAN DEFENSE TERMS

GERMAN

ENGLISH

Abbefördern	To evacuate (prisoners of war, wounded, etc.)
Abblenden	To blackout (a room, etc.) to screen (a light)
Abblendelicht	Dim light
Abgeblendet fahren	To drive with dim lights
Abreisebescheinigung	Permit to leave
Abschubstelle	Evacuation station or office
Absperrdienst	Blocking off service (craters, unexploded bombs etc.)
Absperrtruppe	Roping off squad (unexploded bombs, damaged areas, etc.)
Abteilung (Abt.)	Battalion or detachment (in other connections it may be a division, department or service)
Abwehr	Defense; active
Alarm	Alarm; air raid warning
Alarm aufheben	To give the all clear
Alarmbeleuchtung	Restricted lighting in force during warning period.
Alarmdienst	Warning service
Alarmeinheiten	Storm-Trooper units to summon mobile fire-fighting detachments.
Alarmierer	Warning operators
Alarmmittel	Apparatus for sounding the alarm.



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GERMAN

Alarmplatz

Alarmposten

Alarmstelle

Alarmunterkunft

Alarmzustand

Amt Bau O.T.

Amtsgruppe

Amtsgruppearbeitseinsatz

Amtsträger

Angriff

Angriff (Sturz)

Angriff (Tiefflieger)

Anhänger

Anleitung

Ansetzen

Auffanglager

Aufhellung

Aufhellungsgenehmigung

Aufklären

Aufklärer

Auflockerung

Aufnahmeräume

ENGLISH

Alarm - station

Alarm sentry

Alarm sirens (on housetops, etc.)

Quarters in which people are sheltered during a state of alarm.

Status or condition of alert

War construction administration - Todt organization (later Speer)

Ministry sub-section

Division for labour supply

Office holder

Attack

Dive bombing attack

Low level attack (Fighter-bomber)

Trailer

Instruction; training

To launch or direct (alarm, all clear, attack, etc.)

Temporary housing center for homeless

Relaxation of black-out

Official exception permit to blackout regulations.

To reconnoiter or observe

Observer, spotter

Partial evacuation

Reception space (parks, open areas, etc.)

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GERMAN

ENGLISH

Aufräumetrupps (A. Trupps)	Clearance and debris removal squads
Ausbildungstrupp	Instructional squad
Ausfüllungsgruppe	Reinforcement or relief group
Auslagerung	Dispersal of stocks from warehouses and stores
Ausnahme Betriebe	Industries with permission to continue work during alarm.
Ausquartierung	Rehousing outside the original locality of the homeless.
Ausrückbereiche	Zone of military activity to be evacuated.
Ausweichsbefehlstelle	Command post (auxiliary)
Ausweisstelle	Auxiliary post
Bann	Regiment (Hitler Youth)
Baubevollmächtigter	Building controller
Bau -und - Störtruppsabteilung	Public utility repair column
Bauhilfstrupps (B. Trupps)	Building repair units
Baupolizei	Building police
Beauftragter des örtlichen Luftschutzleiters	Deputy of the local ARP chief
Beauftragter für Luftschutzverdunkelungen beim Reichsminister für Rüstung und Kriegsproduktion.	Deputy for blackouts in ministry for armament and war production.
Beendung des Alarms	End of alert
Befehlshaber der Ordnungspolizei	Commander of the regular or order police.
Befehlsstelle	Command post
Behelfsalarm	Improvised alarm signal



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GERMAN

ENGLISH

Behelfsalarmgeräte	Improvised alarm apparatus
Behelfsmässig	Improvised
Behelfsmässige Kraftfahr- sirenen	Improvised sirens mounted on motor vehicles
Behördlicher Luftschutz	Air raid protection organization for government offices, etc.
Beobachter	Observer or spotter
Beobachtung	Observation
Beobachtungsbereich	Zone of observation
Beobachtungsdienst	Observer service
Beobachtungsposten	Observation post
Beobachtungsstand	Observer post
Beobachtungsstelle	Observation post
Bereitschaft	Preparedness
Bereitschaftsdienst (B.D.)	Emergency or readiness service
Bereitschaftsgrade	The degree of preparedness
Bereitschaftsgruppe	Reserve & reinforcement group
Bereitschaftskräfte	Emergency replacements
Bergekommando	Salvage unit for rescue of trapped persons
Bergen	To delve; to salvage (material); to re- cover; rescue (wounded)
Bergung	Delving; rescue
Bergungskolonne	Salvage or rescue unit
Bergungsmassnahmen	Salvage or rescue measures
Bergungstrupp	Rescue squad
Berufsfeuerwehren	Professional fire units

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GERMAN

ENGLISH

Bescheinigung	Certificate or receipt
Betreuungs - bereich	The territory administered.
Betreuungsstelle	Care and welfare station
Betriebsluftschutzleiter	Air raid protection leader in a small factory, office or business undertaking.
Blindgänger	Dud; unexploded bomb or shell
Blitzlichtbomben	Flashbombs
Blockbrand	Fire of an entire block or large area
Blockwart	Head warden of a "block" (approx. 7 to 10 houses)
Bombensicher	Bomb-proof
Brandabschnitt	Fire sector
Brandbekämpfung	Fire-fighting
Brandbombe	Incendiary bomb
Brandbombemeldeanlagen	Incendiary bomb indicator, reports roof fires to those below in cellar shelters.
Brandbombenmeldegerät	Incendiary bomb -indicator, reports roof fires to those below in cellar shelters.
Brandempfindlichkeit	Fire vulnerability
Brandflaschen	Incendiary bottles ("Molotov cocktails")
Brandkanister	Incendiary container
Brandmauer	Fire wall
Brandmauerdurchbruch	Breach in a fire wall (usually in cellar) to permit emergency exit.
Brandplättchen	Incendiary discs (phosphorus on celluloid)
Brandsäcke	Incendiary bags



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GERMAN

Brandschutz

Brandwache

Brandwachenbereich

Bürgermeister

Bund deutsche Mädel (B.d.M.)

Bunker

Chef der Ordnungspolizei

Chef der Sicherheitspolizei  
und des Sicherheitsdienstes

Deckung

Deckungsgraben

Deutsche Arbeitsfront (D.A.)

Deutsche Jungmädel

Deutsches Rote Kreuz (D.R.K.)

"Die Sirene"

Druckkupplung

Druckschläuche

Durchführordnungen

Einberufung

Eingreifkommando (der Feuer-  
schutzpolizei)

Einleiten

ENGLISH

Fire protection

Fire guard

Area to be covered by the fire guards

Municipal official (mayor)

Girl's section of Hitler youth organiza-  
tion (age 14-21)

Shelter (above ground)

Chief of the regular or order police

Chief of security police & security  
service.

Cover; protection; shelter

Trench

German labor front (nat'l worker's union)

Girl's section of Hitler youth organization  
(age 10-14)

German National Red Cross

A fortnightly ARP illustrated magazine  
wired radio

Fire hose coupling

Fire hose

Executive orders

Summons to duty

Motorized fire brigade units

To prepare; to institute; to launch  
(an attack)

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## GERMAN

Einsatzgemeinschaft

Einsatzgruppe

Einsatzkräfte

Einsatzstabe

Einstellen

Einsturz

Einsturzgefahr

Einteilung

Entgiftungspark

Entwarnung

Entwarnungssignal

Erdbunker

Erfahrungstrupp

Ergänzungs - und Instand-  
setzungsdienst

Erkundungsdienst

Erkundungstreife

Ernährungsamt

Erste Hilfe

Erste Hilfestelle

Erweiterte Kinderlandsver-  
schiebung (extended K.L.V.)

## ENGLISH

Action unit. Usually formed from teams of technical emergency services in a given locality and employed at major incidents.

Stand-by or preparedness group

Available personnel

Tactical definition for units to be employed

To suspend or terminate

Collapse

Danger of collapse

Division or organization (of duties)

Decontamination parks

All clear

"All clear" signal

Dugout earthen shelter

Expert units representing the Production Command (Rüstungskommando) used to supervise armament firms)

Repair service

Reconnaissance service

Reconnaissance patrols

Food office, providing assistance to victims of catastrophies.

First aid

First-aid post

Extended child evacuation scheme



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## GERMAN

Erweiterter Selbstschutz  
(ESS)

Fachgruppe

Farbtarnung

Feldgendarmerie

Fernlicht

Feuerlöschbereitschaft

Feuerlöschdienst

Feuerlöscher

Feuerlöschtruppen

Feuerlöschverband

Feuerlösch - und Ausbildungs -  
Abteilungen

Feuerlösch - und Entgiftungs -  
bereitschaften

Feuermelder

Feuermeldestelle

Feuerpatsche

Feuerschutz

Feuerschutzmittelbehandlung

Feuerschutzpolizei

Feuerschutzpolizei Abschnitts-  
kommando

Feuerschutzpolizei Abteilungen  
(MOT)

## ENGLISH

Air raid protection scheme for small  
businesses, factories, and institutions.

Special technical squads

Camouflage through painting

Military police

"Bright" beam of headlamp

Fire fighting unit

Fire fighting service

Fire extinguisher

Fire fighters

Fire fighting association

Fire fighting and training battalions

Fire fighting and decontamination units

Fire alarm box

Fire alarm box location

Fire beater (made of rags or twigs)

Fire protection

Fire-retardant coating for inflammable  
materials.

peacetime municipal fire brigade or fire  
fighting forces.

A fire department command corresponding  
to the division in the ordinary police  
organization.

Motorized fire battalions

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GERMAN

ENGLISH

Feuerschutzpolizei Kommando	Fire protection police command
Feuersturm	"Fire storm", a gale produced by area conflagrations
Feuer - und - Entgiftungs- bereitschaft der Luftschutz Polizei (F.-u.E.Ber.)	Fire and decontamination column of the air raid protection police
Feuerwart	Fire warden
Feuerwehr	Fire brigade; generic term for fire services.
Feuerwehrbereitschaften	Inter-communal fire brigades
Feuerwehren	Fire brigades
Feuerwehrführer	Chief of fire brigade
Feuerwehrschar (HJ)	Hitler youth fire-fighting platoon
Feuerwehr und Bergungstrupps	Fire brigade and rescue squads
Feuerwerker	Bomb de-fuser
Flächenbrand	Fire of several blocks (or city parts)
Flammstrahlbombe	Incendiary bombs (flame throwers)
Fliegende Einsatzstäbe	Commands representing the nat'l. minister for war production (lit.; "flying labor staffs")
Fliegeralarm	Air raid warning
Fliegeralarm Passierschein	Pass to permit activity during air raid
Fliegerangriff	Air attack
Fliegerbeschädigte	Air raid victims
Fliegerbeschädigten	Label on kitchen utensils and furniture set aside for those who lose these scarce goods in the raid.
Fliegerei	Colloquial for Luftwaffe, and flying



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GERMAN

Fliegerwannungsdienst  
Flüssigkeitsbrandbomben  
Flugmeldedienst  
Flugmeldekompanie  
Flugmeldenetz  
Flugmeldereservekompanie  
Flugwachen  
Flugwachkommando  
Flugzeug Abwehr Kanone (flak)  
Freigabebescheinigung  
Freiwillige Feuerwehr  
Freiwilliger  
Freya  
Formtarnung  
Führung der Luftwaffe  
Gasabwehrdienst  
Gau  
Gauersatzstab  
Gaugebiet  
Gauleiter  
Gebäudebrand  
Gebeit  
Gefallene

ENGLISH

See Luftschutzwarndienst  
Incendiary bombs (liquid)  
Aircraft warning reporting service  
Aircraft warning company  
Observer corps network  
Reserve air observation unit of the air-  
craft reporting (observer) service  
Observation stations or observers  
Hq. of observer corps  
Anti-aircraft cannon  
Employment release for prospective evacuees  
Voluntary (i.e. part-time) firemen in  
small towns and rural areas  
Volunteer  
Code name for radar detector  
Camouflage through netting or construction  
Command of the air force  
Gas defense service  
Administrative unit or district  
District organization staff  
District territory or area  
District leader  
Fire of a whole building  
District; area; zone; or department  
Persons killed due to enemy action

# FINAL REPORT, C.D.D.

## GERMAN

Geneime Staatspolizei  
(Gestapo)

Gemeindegruppen

Gendarmerie (Gend.)

General Bevollmächtigter  
für die Regelung der Bauwirt-  
schaft

Generaldirektor der deutschen  
Reichsbahn

General - Inspekteur der  
Feuerschutzpolizei und Feuer-  
wehren

Geschütze

Gliederung

Grossanlagen

Grossnotstand

Grossschadenstelle

Gruppe

Gruppe (Bezirks)

Gruppe (Gemeinde)

Gruppe (Landes)

Gruppe (Orts)

Gruppe (Ortskreis)

Gruppe (Revier)

Gruppe (Unter)

Gruppenwache

## ENGLISH

Secret state police

Group of small communities

Rural police

Plenipotentiary for the regulation of  
the building industry.

Managing director of the German National  
Railways

Inspector general of the fire protection  
police and fire brigades

Guns

Organization or membership

Large warning systems

Extreme emergency circumstances (after  
air raids, etc.)

An area of extensive damage

Squad or group

County or regional group

Parish group

Provincial group

Borough group

Rural district

Ward group

Sub-group

Operational unit of 12-15 fire fighters  
to man pumps



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GERMAN

Handdruckspritze  
Handfeuerlöscher  
Handspritz  
Hauptamt für Volkswohlfahrt  
Hauptbrandbekämpfungslinie  
Haupttruppmann  
Hausfeuerwehr  
Hauptfeuerwache  
Hauptverbandplatz  
Hauptwarnung  
Hauslandluftschutzgemeinschaft  
Hauswart  
Havarie - Abteilungen  
Havarie Bereitschaften  
Heimatflak  
Heranziehen  
Heulton  
Hilfspolizei  
Hilfsstelle  
Hilfstruppen  
Hitler Jugend (H.J.)  
H.J. Feuerweherscharen  
Hoch - Bunker  
Hofunterweisung

ENGLISH

Manually operated pump  
Hand fire extinguisher  
Stirrup pump  
Main office for national welfare  
Main fire fighting line  
A senior NCO in the fire protection police  
House fire party  
Main fire guard  
Main dressing station (med.)  
Main warning sounded on sirens  
A house party of the rural air protection fellowship.  
House warden  
Damage battalions (harbor)  
Damage preparedness units (harbor)  
Civil anti-aircraft defense  
To draft or muster  
Warbling note  
Auxiliary police  
Aid post  
Auxiliary squads  
Hitler Youth movement  
Fire fighting platoon of the Hitler youth  
Concrete shelter (above ground)  
Training in self protection in rural areas

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GERMAN

Hohere Luftschutzstäbe  
Instandsetzungsabteilungen  
Instandsetzungsbereitschaften  
Instandsetzungsdienst  
Instandsetzungspärke  
Kameradschaft (H.J.)

Kampfstoffschadenstelle  
Kartei Karte  
Kellerwart  
Kinderlandverschickung (KLV)

Kleinbrand  
Kommando der Schutzpolizei  
(Kdo. d. Sch.)

Kommandostelle

Kontrollgänge

Kraftfahr sirenen

Kraftspritze

Krankenkraftwagen

Krankenkraftwagen - Kolonne

Krankenkraftwagenzug

Krankentransport - Abteilung

Kreis

Kreisleiter

ENGLISH

Higher air raid protection staffs  
Repair units (battalions)  
Repair preparedness units  
Repair and rescue service  
Rehabilitation parks  
Lit; "comradship" squad (Hitler Youth)  
approximately 16 youths - a subdivision  
of the firefighting platoon (Feuerwehr-  
schar of the Hitler Youth).

Location affected by the employment of gas

File index card

Cellar warden

Child evacuation scheme

Small fire

High command of the protection police

Headquarters

Patrol beats

Sirens mounted on motor vehicles

Motor pump

Motor ambulance

Motor ambulance column

Motor ambulance section

Ambulance unit

(Lit.; "circle"), rural communal district;  
area; region; county.

Local or district party-leader



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GERMAN

Kriegsschädenamt

Kriminalpolizei (KRIP0)

Lagerführer

Lagermannschaftsführer

Lagerpläne

Laienhelferinnen

Landluftschutzgemeinschaft

Landluftschutzleiter

Landrat

Langzeitzünderbomben

Leichtbeschädigt

Leichte Löschgruppe (Mot.)

Leichtverwundete

Leiter der Sofortmassnahmen  
(L.D.S.)

Leuchtbomben (einfärbig)

Leuchtbomben (mehrfärbig)

Lichttechnische Verdunklung

Lösch Anhänger

Löschbomben

Löschkarren

Löschkraftwagen

Löschmittel

ENGLISH

War damage office; reparation settlements

Criminal police

Director at camps for children

Councillors at Hitler Youth for children  
between 10-14 years.

Sketches, plans

Nurse's aids

Rural air protection fellowship

Chief of a rural air raid protection unit

District mayor

Delayed Action bombs

Lightly damaged

Motorized light fire fighting group

persons with minor injuries

Leader of emergency services

Flares, single color

Flares, multi-colored

Reduce candlepower by means of voltage and  
current reductions or smaller bulb sizes

Fire engine trailer

Extinction bombs - used by the army for  
demolitions

Fire cart, manually operated

Fire engine

Fire extinguishing material

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GERMAN

Löschtruppe

Löschwasser

Löschwasserentnahmestelle

Löschwasserversorgung

Löschzug

Lotsenstelle

Luftabteilungsstäbe z.v.B  
(zur besonderen Verwendung)

Luftabwehr

Luftangriff

Luftangriffsschäden

Luftempfindlichkeit

Luftgau

Luftgefahr

Luftgefahrdrung

Luftgefahr mit Zeitangabe

Luftgefahr vorbei

Luftgefahr vorbei, aber  
gespannte Luftlage

Luftkreis

Luftkriegseinsatz

Luftlagemeldung

Luftmeldedienst

ENGLISH

Fire fighting squad

Water for fire fighting

Supplementary water supply point

Water supply for fire fighting

Extinction (i.e. fire fighting) section  
of a column or company

Pilot station (guide post) at city peri-  
phery

Air protection units for special use

Air defense (active)

Air raid

Damage caused by air attack

Vulnerability to air attack

Air force district

Signal denoting impending attack

Air raid danger

Warning with the indication of how long  
it will be before the attack may begin

All clear

Signal indicating all clear, but repeti-  
tion of attack possible

Air force area (Subdivision of Luftgau)

Employment of all air raid protection  
services

Announcement of enemy movement in the air

Aircraft reporting service



FINAL REPORT, C.D.D.

GERMAN

ENGLISH

Luftschutz	Air Raid Protection (passive); civil defense
Luftschutzabschnitt	Air raid protection administration district of the police
Luftschutzabteilungen (Mot.)	Motorized air raid protection battalion
Luftschutzbefehlsstelle	Command post of an air raid protection unit
Luftschutzbereitschaft	Permanent air raid protection personnel
Luftschutzbereitschaft dienst	Air raid protection service
Luftschutzbund	Air raid protection league
Luftschutz Bunker	Air raid protection concrete shelter
Luftschutzbunderverwalter	Air raid protection shelter
Luftschutz Bunkerwachgruppe	Air raid protection shelter (outside) guards
Luftschutz Bunkerwart	Air raid protection shelter warden
Luftschutzdecke	Protective roofing or covering
Luftschutzdeckungsgraben	Air raid protection slit trench
Luftschutzdienst	Air raid protection service
Luftschutzdienst der Wehrmacht und der übrigen besonderen Verwaltungen	Air raid protection service of the Army and other special administrations
Luftschutzdienststelle	Local air raid protection headquarters
Luftschutz Ersatzabteilung	Air raid protection training unit for Air Force
Luftschutz Fachdienst	Skilled air raid protection services
Luftschutzgesetz	Law of air raid protection league of 26th June, 1935, plus executive decrees
Luftschutzgemeinschaft	Air raid protection community of several houses

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GERMAN

Luftschutzgerätestelle der  
Luftwaffe

Luftschutzgeräte

Luftschutzgruppe (in large  
cities like Berlin or  
Hamburg)

Luftschutzhauswart

Luftschutz Havariedienst

Luftschutzhelfer

Luftschutzkeller

Luftschutz Kleinverdunkelungs-  
vorrichtungen

Luftschutzkompanien zur Bedie-  
nung von Scheinanlagen

Luftschutzleiter

Luftschutz Lotsen

Luftschutz- Lotsendienst

Luftschutz Lotsenstelle

Luftschutzmassiges Benehmen

Luftschutzmassnahmen

Luftschutzmassnahmen für Tiere

Luftschutzmerkblatt

Luftschutzobmann  
(plural - Luftschutzleute)

Luftschutzort

ENGLISH

Warehouse of air raid protection equip-  
ment of the air force

Air raid protection equipment

Air raid protection group of the police

Air raid protection house warden

Air raid protection ship salvage ser-  
vices

Member of the air raid protection organi-  
zation trained in first aid

Air raid protection cellar; shelter

Small air raid protection black-out  
installations

Air raid protection companies for the  
manning of searchlight batteries

Air raid protection leader

Air raid protection guides or pilots

Air raid protection guide service

Air raid protection guide post or pilot  
station

Correct air-raid protection behavior

General air raid protection measures

Air raid protection measures for animals

Air raid protection leaflet or pamphlet  
of instructions

Air raid protection person in charge

A town or other air raid protection local  
area



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GERMAN

Luftschutzpolizei

Luftschutzraum

Luftschutz Raumanlage

Luftschutzrettungsstelle

Luftschutzrevier

Luftschutz-Rundbau

Luftschutz Sachbearbeiter

Luftschutzsanitäts Bereit-  
schaften

Luftschutzsanitätsdienst

Luftschutz Sanitätsmittellager

Luftschutz Sanitätsstellen

Luftschutz Schadenmeldungen

Luftschutzschule

Luftschutzstollen

Luftschutz Tierrettungsstellen

Luftschutz Tiersammel -  
lazarette

Luftschutz Trupp der Luftwaffe

Luftschutz Unterkunft

ENGLISH

Air raid protection police

Air raid protection shelter

Several connection air raid protection  
shelters with gas-chambers

Air raid protection first aid station

Air raid protection district; same bounda-  
ries as police revier

Air raid protection circular shelter  
(above ground)

Specialist in air raid protection matters

Air raid protection first aid units

Air raid protection medical and first  
aid service

Air raid protection evacuation hospital

Air raid protection first aid stations

Air raid protection reports on damage  
caused by air attack.

Air raid protection school

Air raid protection shelter, underground  
tunnel

Air raid protection veterinary first aid  
stations

Air raid protection veterinary collecting  
hospitals

Air raid protection unit of the Air Force

Air raid protection shelter for personnel  
and material

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GERMAN

ENGLISH

Luftschutzverbandkasten	Air raid protection first aid kit
Luftschutzverkehrsgesetz	Air raid protection traffic law
Luftschutzveterinärdienst	Air raid protection veterinary first aid service
Luftschutz Veterinärmittellager	Air raid protection veterinary evacuation hospitals
Luftschutzwacht	Air raid protection ground observer; air sentinel
Luftschutzwarndienst	Air raid protection warning service
Luftschutzwarnkommando	Air raid protection warning command
Luftschutz Warnstellen	Air raid protection warning station
Luftschutzwarnzentrale	Air raid protection warning center
Luftschutzwart	Air raid protection warden
Luftschutzzentrale	Air raid protection central control post
Luftspäher	Aircraft spotters distributed throughout an area
Luftwaffe	German Air Force
Luftwaffenflak	Air forces anti-aircraft artillery
Mehrzwecke Bomben	Multi-purpose bombs
Meldekopf	Message center
Melderose	A graduated hearing aid
Meldesammeldstelle	Report center; signal center
Meldestelle	Local reporting office
Minenbomben	Aerial mines
Motorstaffeln )	Divisions or groups of the NSKK, National socialist motor corps
Motorstandarte )	
Motorstürme )	



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GERMAN

Nachbarliche Hilfe

Nachrichtensammelstelle

Nationalsozialistische  
deutsch Arbeiterpartei  
(NSDAP)

National sozialistische Frauen-  
schaft N.S.F.

Nationalsozialistischer  
Kraftfahr-Korps (NSKK)

Nationalsozialistischer  
Lehrer Bund (NSLB)

Nationalsozialistische  
Volkswohlfahrt (N.S.V.)

Naturtarnung

Nebelabteilungen und Nebel-  
companien

Nebelwerfer

Notbelegschaft

Notdienstpflichtige

Oberbefehlshaber der Luftwaffe

Oberbürgermeister

Öffentlicher Bunker

Öffentliche Luftwarnung

Öffentlicher Luftschutzraum

ENGLISH

Neighbourly help; units to help in neigh-  
bouring communities

Information center

Nazi Party; National-Socialist German  
Labor Party

National socialist woman's organizations,  
active in welfare and in air raid protec-  
tion and relief.

National socialist motor corps

National socialist teacher's league

National socialist people's welfare organi-  
zation. Organization of the Nazi party  
with jurisdiction over all public welfare  
organizations and functions.

Natural camouflage

Smoke screen battalions and companies

Smoke laying apparatus

Skeleton working crew

Persons required to serve in an emergency  
at the Home Front

Commander-in-chief of the Air Force

Senior Mayor (in large cities)

Public shelter of concrete

Preliminary air raid warning (warning of  
danger, but not imminent)

Public air raid protection shelter

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GERMAN

ENGLISH

Offentliche Sammelschutzräume	Public shelter intended for use of persons in the streets who cannot reach home.
Ordnungspolizei (ORPO)	Regular or Order police, air raid protection, traffic, aliens.
Ordnungs-und Absperrtrupps	Squads used to police and rope off an area
Organization Todt	Todt, organization; war time building and construction
Ort	Locality, village
Ortlicher Luftschutzleiter	Local air raid protection leader
Ortsgruppen	Local groups
Ortskreisgruppen	Rural district groups
Ortsluftschutzleiter	Local air raid protection leader, usually the local police chief.
Ortspolizeibehörden	Local police authorities
Ortpolizeiverwalter	Local police administrator
Pflichtefeuerwehren	Compulsory fire brigade
Phosphorbrandbomben	Incendiary bombs (phosphorus)
Physikalischtechnische Reichsanstalt	An organization equivalent to "Underwriter's Laboratories"; stamp appears on electrical equipment, etc.
Polizei	Police
Polizeidirektor	Police chief
Polizeipräsident	Police President; sometimes Bürgermeister (mayor)
Polizeireservisten	Police reserves
Polizeiverwaltung	Police administration
Polizeivollzugsbeamte	Police executive officials



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## GERMAN

Quartieramt (QA)

Raumordner

Räumung

Räumungsdienst

Reich

Reichsamt technische  
Nothilfe

Reichsanstalt der Luftwaffe  
für Luftschutz

Reichsarbeitsdienst (RAD)

Reichsarbeitsminister

Reichsarbeitsministerium

Reichsarchiven

Reichsbahn

Reichsbahndirektion

Reichsfinanzminister

Reichsführer der Schutz  
Staffel (SS) und Chef der  
deutschen Polizei

Reichsgesundheitsamt

Reichsfürsorge und Versor-  
gungsgesetz

Reichsgruppe Industrie

Reichskanzlei

Reichskriegsschadenamt

## ENGLISH

Billeting office

Shelter usher or guide

Evacuation

Clearance or clearing service

Nation (country)

National office for technical help in  
emergencies. See Technische Nothilfe,  
of which it is the central office.

National Air Force Institute for Air  
raid protection

National Labor Service

National Minister of Labor

National Ministry of Labor

National archives

National railways

National management of railroads

National minister of finance

Leader of the Protection Staff (SS) and  
chief of the German police

National health office on Ministry of  
Interior

National welfare and social law

National council for industry

National Chancellery

National war damage office

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GERMAN

ENGLISH

Reichskriminal Polizei (KRIPD)	National Criminal Police
Reichsleiter	A National Director
Reichsluftschutzbund (R.L.B.)	National air raid protection league
Reichsluftschutzbund Bezirksgruppen	District groups or gau groups of the Air Protection League
Reichsluftschutzbund Gemeindegruppen	Community groups (local) of the Air Protection League
Reichsluftschutzbund Reviergruppen	Police district groups of the Air Protection League
Reichsluftschutzbund Untergruppen	Sub-units of local groups of the Air Protection League
Reichsminister	National minister
Reichsminister der Luftfahrt	National minister of air transport
Reichsminister des Inneren	Minister of the Interior
Reichsministerialblatt der inneren Verwaltung	National administrative publication of the Ministry of the Interior
Reichsministerium	National ministry
Reichspost	National Post Office and communications system
Reichsverkehrsminister	National minister of transportation
Reichsverteidigungsbezirk	National defense district
Reichsverteidigungskommissar	National Commissioner for defense
Reichswohnungskommissar	National housing commissioner
Rettungsarbeit	Rescue work
Rettungskräfte	Rescue personnel



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GERMAN

Rettungsmassnahmen

Rettungsstelle

Rettungsstellen (Gruppen)

Rettungsstellengruppe

Rettungswege

Revier

Reviergruppe

Ruhrstab Speer

Rundbau

Rüstungsinspektion

Samariterdienst

Sammelschutzraum

Sammelstelle für Gefallene

Sammelstelle für Verwundete

Sammelwasserversorgung

Sanitätsbereitschaft

Sanitätsdienst

Sanitätskraftwagen

Sanitätstruppen

Sanitätswagen

Schadensgebiet

Schadensstelle

ENGLISH

Rescue measures

First aid post

First aid posts (sections)

First aid personnel at aid station

Fire exits (paths)

An area corresponding approx. to a police precinct.

District group, sub-division; group; warden group.

Speer staff representatives in the Ruhr area

Circular concrete shelter

Armament inspection

"Samaritan service"; first aid service

Collecting protection room; shelter

Collecting point for the killed

Collecting point for wounded

Water supply for general use

Medical, first aid, and ambulance column

Medical first aid and ambulance service

Medical motor ambulance

Medical first aid squads

First aid van (ambulance)

Area of damage

Location of damage

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GERMAN

ENGLISH

Schadensstellenführer	Incident officers appointed from among police officers
Schlauchtruppmann	Fireman (hose squad)
Schnellkommandos	Motorized emergency units; fast moving units used for fire and damage
Schnell - Löschruppe	Emergency fire brigade
Schutz	Defense; protection
Schutzpolizei (Schuppo; Sch.)	Regular or protection police
Schutzpolizeibereitschaft	Company of town constabulary
Schutzraum	Air raid shelter
Schutzraumordner	Shelter usher or guide
Schutz Staffel (S.S.)	Protection squad (Hitler's personal body-guard) (Himmler's Black Guards)
SS. Katastrophen Stürme	Emergency company of SS police
SS Industrieschutzmannschaften	Industrial safety crews of S.S. formations
Schwerbeschädigt	Heavily damaged
Schwere Löschruppe	Motorized heavy fire fighting group
Schwerverwundete	Persons with serious injuries
Selbstschutz	Self protection; self defense; air raid protection for homes and individuals
Selbstschutzbereich	Area of several air raid protection communities under one leader
Selbstschutzbereitschaft	Self-protection company
Selbstschutzdienst	Self-Protection Service (fireguards, house and block wardens)
Selbstschutztrupp	Fire fighting unit of an air raid protection community



# FINAL REPORT, C.D.D.

## GERMAN

Selbstschutzzug

Sicherheitsbeleuchtung

Sicherheitsdienst (S.D.)

Sicherheits- und Hilfsdienst

Signalswurfmunition

Sirene

Sirenenfernsteuerung

Sofortmassnahmen

Splitterbomben

Splitterschutz

Sprengbomben

Sprengkommandos der Luftwaffe

Staatlich (adj)

Stabbrandbomben

Städtlich (adj)

Stahlhäuschen

Standrohr

Statistisches Reichsamt

Stauwasser

Stackstoff lost

Stollen

Streifendienst der Hitler  
Jugend

## ENGLISH

A unit of the self protection service operating within a "cell" of the Nazi Party

Security lighting (dim- or black-out)

Security service

Security and assistance service

Aerial-signal ammunition

Siren; klaxon (also name of National Air raid Protection League publication)

Electric gadget, which will start all sirens in one area simultaneously

Emergency measures

Fragmentation bombs

Protection from splinters

Explosive bombs

Air force bomb de-fusing and disposal units

State

Incendiary bombs (thermite)

City

Industrial "keyman" shelter

Standpipe (hydrant)

National statistical office

Static water; dammed up water

Nitrogen mustard

Gallery shelter (underground)

Patrol service of the Hitler Youth

# FINAL REPORT, C.D.D.

## GERMAN

## ENGLISH

Sturm Abteilung (SA)	Storm trooper detachment or the police of Nazi Party
Tarnung	Camouflage
Technische Hilfspolizeien	Technical auxiliary police
Technische Nothilfe (T.N.)	Technical emergency service
Technisches Amt	Technical office
Todt Organization (OT)	See Amt Bau O.T.
Tragspritze	Portable pump
Trümmer	Debris; ruins
Truppenverbandplatz	First aid stations (improvised)
Unabhängige Löschwasser- versorgung	Independent water supply for fire fighting (farm brooks, rivers, lakes, etc.)
Verdunkelung	Darkening; black out.
Verdunklungserleichterung	Official exception permit to black-out regulations
Verdunklungserleichterung zugelassen	Black-out facilities in effect
Vermisste	Persons missing
Verschüttete	Persons buried under debris
Verschüttung	Burial due to collapse of building
Verwaltungspolizei (Verw.P.)	Administrative police
Veterinär Polizei	Veterinary police
Vorentwarnung	Pre-all clear signal
Wachbezirke	Observation or watch areas
Warngebiet	Area covered by the airraid protection warning service
Verdunklungserleichterung aufgehoben	Cancellation of black-out facilities



# FINAL REPORT, C.D.D.

## GERMAN

## ENGLISH

Warnwache	Warning guards or watches
Warnzentrale	Air raid warning center
Wassergasse	Fire exit, created by means of water streams
Wehrkreis	Military district of the type formerly designated in the U.S. as "corps area "; defense command
Wehrkreisbeauftragter	Military district deputy
Wehrmacht	Armed forces
Wehrmachtshilfskommando	Army units to be called in case of extensive damage
Werkalarm	Alarm in industrial places
Werkfeuerwehren	Fire fighting forces composed of factory workers
Werkföhrer	Leader of the factory
Werkluftschutz	Works, industry, or factory air raid protection
Werkluftschutz Bereichsstellen	District agency for factory air raid protection
Werkluftschutzbezirksstellen	District agency for factory air raid protection
Werkluftschutzdienst	Works (factory) air raid protection service, responsible for large factories, commercial, and industrial undertakings.
Werkluftschutz Ortsstellen	Local agency for factory air raid protection
Werkluftschutzpolizei	Factory air raid protection police
Werkluftschutz Zentralstelle	National agency for industrial air raid protection
Warnbefehl	Order initiating warning measures

FINAL REPORT, C.D.D.

GERMAN

Winkel

Wirtschaftsamt

Zelle

Zerstört

Zug

Zugwache

ENGLISH

Tower shelter

Economic or finance office providing assistance to air raid victims.

A cell; several tenement blocks

Destroyed

Section (10 - 20) in Fire Service

Unit of 8 - 12 fire fighters to man pumps.





# FINAL REPORT, C.D.D.

## ABBREVIATIONS

a.	- from; out of (aus); on (an; am)
A.	- accepted (on bills of exchange) (akzeptiert)
A.A.	- Secretary of State (Auswärtiges Amt)
a.a.O.	- in the before mentioned place (amangefährten Ort)
A.B.	- Regulations of carrying out (Ausführungsbestimmungen)
Abb.	- illustration (Abbildung)
ABC Staaten	- Argentine; Brazil; Chile
Abf.	- departure (Abfahrt)
Abg.	- member of Parliament (Abgeordnete(r))
Abh.	- treatise (Abhandlung)
Abk.	- abbreviation (Abkürzung)
Abs.	- paragraph or sender (Absatz oder Absender)
Abschn.	- paragraph or chapter (Abschnitt)
a.c.	- (of) this year (laufendes Jahr)
A.Ch.	- before Christ; B.C. (vor Christi)
A.D.	- in the year of the Lord
a.D.	- retired; on half pay (ausser Dienst)
a.d.	- on the (an der) (before names of rivers)
a.d.	- from (this) date
A.D.A.C.	- General German Automobile Club (Allgemeiner Deutscher Automobil Club)
ADGB	- Federation of German Free Trade Unions (Allg.Deutscher Gewerksch.Bd.)
A.E.C.	- General Electric Company (Allgemeine Elektrizitäts-gesellschaft)
a.G.	- mutual (auf Gegenseitigkeit)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Ag.	- silver (chem.) (Silber)
A.G.	- Inc. (Aktiengesellschaft)
Agfa	- German photographic and analine company
A.H.	- former member of a (students) club
ahd.	- Old High German (althochdeutsch)
allg.	- general ( allgemein)
Angekl.	- the accused, (Angeklagte(r))
Anh.	- appendix (Anhang)
Ank.	- arrival (Ankunft)
Anm.	- note (Anmerkung)
Anz.	- advertisement or advertiser (Anzeigen(r))
A.O.	- Order (Anordnung)
a.o.P.	- assistant professor, university lecturer (ausserordentl. Professor)
Art.	- article (Artikel)
a.St.	- old style (alten Stils)
Asts	- General Student Committee (Allgem. Studenten Ausschuss)
A.T.	- Old Testament
at.(Atm.)	- atmosphere (Phys.)
Au.	- gold (chem.)
Aufl.	- edition (Auflage)
Aussp.	- pronunciation (Aussprache)
A.V.	- General Decree (Allgemeine Verfuegung)
AVU	- Incapability of working (Arbeitsverwendungsunfähigkeit)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

AVU-Rente	- Allowance in case of incapability of working
a.Z.	- on credit; on account (auf Zeit)
b.	- at; with; by; near
- b	- final, as the second part of a word, stands for: 1. -bau e.g. Bergb. - mining (Bergbau) a. -ber e.g. Färb. - dyer (Färber)
B.	- bills; papers ( in opposition to G money (Geld)
B.	- example; z.B. - for instance (zum Beispiel)
BA.	- share (Bankaktie)
Bayr.	- Bavarian (Bayrisch)
Bch.	- book (Buch)
Bd.	- volume (Band); Bde. - volumes (Bände)
BDA	- Association of German Architects (Bund Deutscher Architekten)
BdM.	- Hitlerite Girls Organization (Bund deutscher Mädel)
Bdtg.	- meaning
Bearb.	- adaptor or version (Bearbeiter(ung))
Bed.	- signifies (bedeutet)
Beibl.	- supplement (Beiblatt)
Beif.	- (sent) herewith (beifolgend)
Beil.	- enclosed (beiliegend)
Bem.	- note; comment; observation (Bemerkung)
Ber.	- report (Bericht)
bes.	- especially (besonders)
best.	- destined (bestimmt)
betr.	- concerning (betreffend)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

bev.	- authorized; plenipotentiary (bevollmächtigt)
bez.	- paid; with reference to (bezahlt; bezüglich)
Bez.	- district (Bezirk)
Bf.	- bills (Brief) (in opposition to money)
Bg.	- sheet (Bogen)
BGB	- civil code (Bürgerliches Gesetzbuch)
Bi.	- bismuth (chem.) (Wismut)
bibl.	- biblical (biblisch)
bildl.	- figuratively; metaphorically (bildlich)
bisw.	- sometimes; occasionally (bisweilen)
Bl.	- paper (Blatt)
B.P.	- fast passenger train (Beschleunigter Personenzug)
Br.	- brother (Bruder; latitude (Breite);
br.	- wide (breit); stitched (broschiert); gross weight (brutto).
B.R.T.	- gross register tons (Brutto Register Tonnen)
Bugra	- Annual Exhibition of Printing and Graphic Arts (Buchgewerbe u. Graphik)
bezw.	- respectively; or (beziehungsweise)
C.	- carbon (chem.) Kohlenstoff
ca.	- about (circa)
cand.phil.	- Student of Philosophy before his final examination
Chr.	- Christ; chronicle (Christus; Chronik)
cbm.	- cubic meter (Kubikmeter)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

ccm.	- cubic centimeter (Kubikzentimeter)
cm.	- centimeter (Zentimeter)
crt.	- current
c.t.	- 15 minutes later
D.	- Germany
d.Ae.	- the elder; senior (der Ältere)
das.	- in the same place (daselbst)
DAZ.	- newspaper, "Deutsche Allgemeine Zeitung"
DB	- Regulation of procedure (Durchführungsbestimmungen)
DBG	- Law for German Officials (Deutsches Beamtengesetz)
d.d.	- dated; from the date
Delag.	- German Electricity Company
d.G.	- by favour (of) (durch Güte)
d.h.	- that is; viz (das heisst)
dgl.	- similarly (dergleichen); u.dgl. - and so etc. (und dergleichen)
d.Gr.	- the Great (der Grosse)
d.i.	- that is (das ist)
Din.	- Direction of German Industries (Deutsche Industrie Normen)
Dipl. Ing.	- engineer with diploma (Diplomingenieur)
Dipl. Kfm.	- person with diploma in commerce (Diplomkaufmann)
d.J.	- of this year (dieses Jahr); the younger; junior (der Jüngere)
D.J.	- German Administration of Law (Deutsche Justiz)
DJH	- German Youth Hostel (Deutsche Jugendherberge)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

DJZ	- Official Paper for German Lawyers (Deutsche Juristen Zeitung)
d.M.	- of this month (dieser Monat)
D.N.B.	- German News Agency (Deutsches Nachrichtenbüro)
d.O.	- the above mentioned (der Obige)
do.	- the same
DO X	- German flying boat (of Dornier works) (Dornier Flug-schiff)
DR	- German Law (Edition A) (Deutsches Recht, Ausgabe A)
DV	- German Administration (Deutsche Verwaltung)
d.Vf.	- the author (der Verfasser)
DVO	- Regulation of Procedure (Durchführungsverordnung)
D.Wb.	- German Dictionary
D=Wagen	- corridor-carriage (Durchgangswagen)
dz.	- 100 kilogrammes (Doppelzentner)
dz.	- at present; then (derzeit)
D=Zug	- through (corridor) - train (Durchgangszug)
ea.	- (to) each other (einander)
ebd.	- in the same place (ebendasselbst)
eod.	- published by
E.G.M.B.H.	registered company with limited liability (Eingetragene Genossenschaft mit beschränkter Haftpflicht)
e.h.	- honorary (of degree) (ehrenhalber)
Ehape	- chain-stores (Einheitspreisgeschäfte)
eidg.	- Federal (swiss) (eidgenössisch)
eigtl.	- properly; really (eigentlich)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Einl.	- introduction (Einleitung)
einschl.	- including (einschliesslich)
Einz.	- singular (Einzahl)
einz.	- separate; single (einzeln)
E.K.	- iron cross (Eisernes Kreuz)
em.	- retired
engl.	- English
Entschl.	- resolution (Entschluss)
entspr.	- corresponding (entsprechend)
entw.	- either (or) (entweder (oder))
Erdg.	- basement (Erdgeschoss); history of the earth (Erdgeschichte)
erg.	- supply; add (ergänze)
Erl.	- explanation (Erläuterung)
Erl.	- Edict (Erllass)
Etym.Wb.	- etymological dictionary
E.V.	- incorporated (Eingetragener Verein)
ev.+luth.	- Lutheran
evtl.	- perhaps; possible (eventuell)
Ew.	- your (Eure)
EWFG	- Law of Welfare and Maintenance
exkl.	- except; not included
Expl.	- copy (Exemplar)
Exz.	- Excellency (Exzellenz)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

E=Zug	- fast passenger train (Eilzug)
f.	- for (für); following page (folgende Seite)
F.	- telephone (Fernsprecher)
F	- Fahrenheit (Farad)
FAD	- Voluntary Labor Service (Freiwilliger Arbeitsdienst)
FD=Zug	- long-distance corridor-train (Fern-D Zug)
Fe.	- iron (chem)
Feka	- long-range artillery (Fernartillerie)
Festst.Bh.	- Office of Confirming War Damage (Feststellungsbehörde)
ff.	- the following (folgende); extra fine (sehr fein)
fl.	- florin (Gulden)
Flak	- anti-aircraft gun (Flugzeug=Abwehr-Kanone)
Fleiverkehr	- traffic by air and rail (Flugzeug-Eisenbahn-Verkehr)
Flugschr.	- pamphlet (Flugschrift)
fm	- cubic meter (of solid wood) (Festmeter)
FMBL.	- Paper of the Prussian Finance-Ministry (Preuss. Finanzminist.Blatt)
Fol.	- page (Folio)
Forts.	- continuation (Fortsetzung)
Forts.f.	- to be continued (Fortsetzung folgt)
fr.	- free; post-free; paid (franko; frei)
Fr.	- Madame; Mrs.
franz.	- french (französisch)
frdl.	- kind (freundlich)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Frhr.	- baron (Freiherr)
Frl.	- Miss (Fräulein)
F-Schlüssel	- bass-clef
g	- gramme (Gramm)
GBA	- Representative General for Labour (Generalbevollm.f.d. Arbeitseinstz)
GB Bau	- Representative General for Regulating the Building Trade (Gen.Bev)
GdA	- Federation of Trade Unions of (commercial) employees (Gewerkschaftsbund der Angestellten)
geb.	- born; (geboren); bound (gebunden)
Gebr.	- brothers (Gebrüder)
Geb Sch VO	- Decree of Building-Repairs (Gebäudeschadenverordnung)
gef.	- kindly (gefälligst); zur gef. Ansicht - on approval
gegr.	- founded (gegründet)
geh.	- stitched (geheftet)
Geh.Rat	- privy councillor (Geheimrat)
geistl.	- spiritual (geistlich)
gek.	- abbreviated
gen.	- mentioned; surnamed (genannt)
ges.gesch.	- registered trademark (gesetzlich geschützt)
Ges.	- society; club; company (Gesellschaft)
geschr.	- written (geschrieben)
gespr.	- spoken (gesprochen)
gest.	- late; died (gestorben)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Gestapo	- secret state police (Geheime Staats Polizei)
gew.	- usually (gewöhnlich)
Gew.O.	- trade regulation (Gewerbe=Ordnung)
gez.	- signed (gezeichnet)
G.H.Q.	- General Headquarters (Grosses Hauptquartier)
GKR	- Leaflets about Law of War Damage in Great-Germany (G.D.Kriegsrechtbl.)
gleichbd.	- synonymous (gleichbedeutend)
gl.N.	- of the same name (gleichen Namens)
GMBH	- limited (liability) company (Gesellschaft mit beschränkter Haftung)
gr.	- free of charge (gratis)
Grdr	- outline; sketch (Grundriss)
gr.=kath.	- belonging to the Greek Church (griechisch=katholisch)
GS	- Collection of Prussian Laws (Preuss.Gesetzsammlung)
G=Schlussel	- treble clef
H	- hydrogen (chem.) (Wasserstoff)
H	- credit (Haben)
ha	- hectare (Hektare)
HAPAG	- Hamburg American Line (Hamburg=Amerikanische=Paketfahrt=Aktien Gesellschaft)
Hbf.	- Central Station (Hauptbahnhof)
h.c.	- honoris causa (honorary)
hd.	- High German (hochdeutsch)
hfl.	- Dutch florin (holländischer Gulden)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Hq	- mercury (chem.) (Quecksilber)
HGB	- commercial law code (Handelsgesetzbuch)
H.H.	- University of commerce (Handelshochschule)
HJ.	- Hitler Youth (Hitler Jugend)
hl.	- 22 gallons (hektoliter)
Holl.	- Dutch (holländisch)
Hptw.	- noun; substantive (Hauptwort)
Hr.	- Mister
hrsg.	- edited (herausgegeben)
Hs.	- manuscript (Handschrift)
Hsgbr.	- editor; publisher (Herausgeber)
HVBl.B	- Leaflets of Military Regulations (Part B) (Heeresverordnungsbl.B.)
i.	- in; in the; into; into the (in; im)
I.	- your; her; their
I.M.	- Her Majesty
i.A.	- by order; on behalf of (im Auftrage)
I.A.A.	- International Labor Bureau (Internationales Arbeitssamt)
i.allg.	- in general; generally speaking (im Allgemeinen)
i.b.	- in particular (im besonderen)
Ibg.	- International architectural exhibition (Internationale Bauausstellg.)
i.Durchschn.	- on an average (im Durchschnitt)
i.e.R.	- temporarily pensioned off (im einstweiligen Ruhestand)
I.G.	- pool; trust (Interessengemeinschaft)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

I.G.F.	- German Dye Stuff Combine
i.J.	- in the year (im Jahre; anno)
I.K.H.	- Her Royal Highness (Ihre Königliche Hoheit)
Ila	- international exhibition of aircraft (Internat. Luft- fahrt Austellg.)
Imp.	- emperor (imperator)
inkl.	- inclusively; included
i.P.	- in Prussia
i.R.	- retired (im Ruhestand)
I.R.	- Emperor and King (Imperator and Rex)
i.V.	- on behalf of; by order; by proxy; as a substitute (in Vertretung)
J	- iodine (chem.) (Jod)
JH	- Youth Hostel (Jugendherberge)
J.-Nr.	- number in daybook (ledger) (Journalnummer)
jun. (jr.)	- younger- (junior)
Jungdo	- Young German Order (Jugdeutscher Orden) (National German Organizat. built up on medieval lines)
JW	- Weekly Paper of Law (Juristisches Wochenblatt)
k.(Kais.)	- imperial (kaiserlich); royal (königlich)
K.	- chapter (Kapitel); cape (Kap); potassium (chem) (Kal- ium); calorie (Phys.) (Kalorie); Austrian coin (Krone)
kath.	- catholic
kg.	- kilogram
K.G.(a.A.)	- limited partnership (Komanditgesellschaft)
Kgl.	- Royal (königlich)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

k.J.	- of the following year (kommenden Jahres)
k.k.K.K. ) k.u.k. )	- Imperial and Royal (Kaiserlich und Königlich)
kl.	- small (klein)
Kl.	- class; form
K.L. ) Konv.Lex. )	- encyclopaedia (Konversationslexikon)
km.	- kilometer
k.M.	- (of) next month (künftigen Monats)
kn.	- knot (naut.) (Knoten)
Komp.	- company (mil.) Kompanie
Konj.	- subjunctive mood (Konjunktiv)
kons.	- conservative (konservativ)
K.P.D.	- German Communist Party (Kommunistische Partei)
kr.	- Austrian copper coin (Kreutzer)
Kr.	- Scandinavia coin (Krone)
KSSCHVO	- Decree of War Damage (Kriegssachschädenverordnung)
k.v.	- A l. (military Fitness) (kriegsweerdungsfähig)
K Wh.	- kilowatt hour (B.T.U.) (Kilowattstunde)
K.Z.	- stock-exchange list (Kurszettel)
Kazet	- Concentration Camp (Konzentrationslager)
l.	- read (lies); dear (lieb); left (links); litre (liter)
L	- length; longitude (Länge); naval airship (Marine- luftschiff)
L.=Zug	- saloon-train (Luxuzug train de luxe)



## FINAL REPORT, C.D.D.

### ABBREVIATIONS

l.a.	- according to the rules of the art (Pharm.)(lege artis)
landw.	- agricultural (landwirtschaftlich)
l.c.	- see above, in the place quoted (loco citato)
ldr.	- Louis d'Or French Gold coin; leather (Leder)
ldrb.ldr.	- leather binding (Lederrücken) (Lederband)
ld.	- current; present (laufend)
lfg.	- delivery; instalment; part (Lieferung)
lic.	- licentiate (Lizentiat)
lit.	- literature (Literatur)
l.J.	- (of) this year (laufenden Jahres)
log.	- logarithm (Logarithmus)
L.S.	- long sight or date (lange Sicht)
L.S.	- instead of a seal (loco sigili)
luth.	- Lutheran (lutherisch)
LVBl.	- Leaflets of Decrees for Air Force (Luftwaffen-Verordnungsblatt)
Lwd.	- canvas (Leinwand)
Lwdb.	- cloth-binding (Leinwandband)
Lw RMBL.	- Leaflets of the Ministry of Agriculture (R.M.Bl.d. Landw. Verwaltg.)
L Z	- airship of the Zeppelin type (Zeppelin-Luftschiff)
m.	- note (merke); with (mit); masculine (männlich); meter
M.	- mark (Mark); mile (Meile); medium kind or quality (Mittelsorte); model (Modell); month (Monat)
M-A.	- miniature edition (Miniatur Ausgabe)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Mag.	- magazine
m.A.n.	- in my opinion (meiner Ansicht nach)
m.a.W.	- in other words (mit anderen Worten)
M Bli V	- Leaflets of the National Ministry of Interior (M.Bl.RM.d.Inn.)
m.c.	- of this month (mensis currentis)
M.d.L.	- member of the diet of a German state (Mitglied d. Landtags)
M.d.R.	- M.P. member of the German Central Parliament (M.d.Reichstags)
m.E.	- in my opinion (meines Erachtens)
Mehrz.	- plural (Mehrzahl)
MER	- Middle European Travelling Agency (Mitteleuropäisches Reisebüro)
MEZ	- time of the middle-European zone (Mitteleuropäische Zeit)
mg.	- milligramme (milligramm)
m.G.	- gilt edge (mit Goldschnitt)
M.G.	- machine-gun (Maschinengewehr)
mhd.	- Middle High German (mittelhochdeutsch)
Min. Bl.	- leaflets of the Ministry of Interior in Prussia (M.Bl.f.pr.inn.Vwltg.)
Mitropa	- Middle-European Society for dining - and sleeping - cars (Mitteleuropäische Schlaf-und Speisewagengesell- schaft)
M.K.	- meter-candle )Phys.) (Meterkerze, Lux)
m.l.	- my dear (mein lieber)
mm	- millimeter (millimeter)
M.m.	- with the necessary alterations (mutatis mutandis)



## FINAL REPORT, C.D.D.

### ABBREVIATIONS

möbl.	- furnished (möbliert)
mol.	- atomic weight in grammes (Gramm-molekel)
Mol.	- molecule (Molekül)
m.R.	- my account (meine Rechnung)
m.s.	- see; compare (man sehe)
Machr.	- monthly (periodical) (Monatsschrift)
Mskr.Ms.	- manuscript (Manuskript)
MV Bl	- leaflets of Decrees of the Ministry of Navy (Marineverordg.Bl.)
m.w.	- it shall be done (sl.) (machen wir)
m.W.	- so far as I know (meines Wissens)
m.Z.	- in default of payment (mangels Zahlung)
n.	- after (nach); new (neu); next (nächst)
N.	- name (Name); north (nord); nitrogen (chem.) (Stickstoff)
N.A.	- new edition (Neue Auflage)
Nachf.	- successor (Nachfolger)
nachm.	- in the afternoon (Nachmittag)
Nachn.	- reimbursement; cash on delivery (Nachnahme)
nat.soz.	- National Socialist
n.B.	- northern latitude (nördliche Breite)
n.Chr.	- A.D. after Christ (nach Christi Geburt)
nörd.	- Low German (niederdeutsch)
NE	- Compensation for loss of Profit (Nutzungs Entschädigung)
NF	- new series (neue Folge)

# FINAL REPORT; C.D.D.

## ABBREVIATIONS

nhd.	- New High German (neuhochdeutsch)
n.J.	- next year (nächstes Jahr)
n.M.	- next month (nächsten Monat)
N.N.	- sea-level (Normal-Null)
N.N.	- name un-known to me (nescio nomen)
no.(ntto.)	- net (netto)
No.(Nr.)	- number (Numero)
NR	-Regulating Loss of Profit (Nutzungsschadenregelung)
NS	- postscript P.S. (Nachschrift)
NSBO	- organization comprising smallest National Socialist groups (in factories, offices, etc.) (Nationalsozial. Betriebszellenorganisat.)
N Sch	- Loss of Profit (Nutzungsschaden)
N Sch AQ	- Decree of Compensation of Loss of Profit (Nutzungsentsch. V.)
NSDAP National Socialist	- German Workers Party (Nationalsozial. Deutsche Arbeiter- partei)
NS Hago	- National Socialist Organization for Crafts, Commerce and Trade (Nationalsozialistische Handwerks, Handels-und Gewerbeorganis.)
n.St.	- new style (neuen Stiles)
N.T.	- New Testament (Neues Testament)
NW	- North West (Nordwest)
o.	- above (oben); without (ohne)
O.	- order (Order); place (Ort); east (Osten); oxygen (Sauerstoff)
OA	- administrative district (Oberamt)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

ö.(österr.)	- Austrian (österreichisch)
o.ä.	- or something similar (oder ähnliches)
o.B.	- without findings (med.) (ohne Befund)
Obb.	- South Bavaria (Oberbayern)
od.	- or (oder)
OEZ	- time of the East-European zone (Osteuropäische Zeit)
OG	- local branch (Ortsgruppe)
OHL	- Supreme Command (Oberste Heeresleitung)
o.J.	- no date (ohne Jahr)
OKW	- Supreme Command of Wehrmacht (Forces) (Oberkommando d. Wehrmacht)
o.l.	- east longitude (östlicher Länge)
o.O.u.J.	- without place or date (public.) (ohne Ort und Jahr)
O.P.D.	- board of directors of the General Post Office (Oberpostdirektion)
org.	- organic(ally) (organisch)
Ostpr.	- East Prussia
p.	- by; for (per; par; pro)
P.	- phosphorus (Phosphor); papers; bills (Papier); Minister (pastor); father (Pater)
pa.	- first-class (prima)
p.A.	- care of (per Adresse)
p.a.	- pro anno (for the year)
part.	- street level (parterre)
Pb.	- lead (chem.) (Blei)
p.c.	- per cent (Prozent)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

p.Chr.	- post Christum. A.D.
Pf.	- German copper coin (Pfennig)
Pfd.	- pound (Pfund)
Pfd.St.	- pound sterling (pfund Sterling)
Pg.	- fellow-member of a party (Parteigenosse)
p.m.	- after death (post mortem); per thousand (pro mille)
P.O.	- political organization (Politische Organisation)
p.p.	- by procuration (per procura)
P.P.	- premising what is to be premised; omitting all titles; Sir; Madam; (on business letters) (der p.p.Müller) (the said Müller)
Pr.	- press (Presse); Prussian (Preussisch)
Praes.RVG.	- Comments of President of National Administration Court concerning War Damage (Mitteilg.P.R.Vwltg.Gerichts Kriegssachschaden)
Pred.	- preacher or sermon (Prediger oder Predigt)
Progr.	- programme (Programm)
Prof.	- professor (Professor)
Prof.Ord.	- (ordinary) Professor (Professor Ordinarius)
Prov.	- province (Provinz)
PS	- horse-power (Pferdestärke)
P Sch VO	- Decree of Personal Damage (Personenschadenverordnung)
p.t.	- for the time being (pro tempore)
P.T.	- omitting all titles (praemissis titulis)
q.	- square (Quadrat)
qcm.	- square centimeter (Quadratcentimeter)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

qkm.	- square kilometer (Quadratkilometer)
qm.	- square meter (Quadratmeter)
r.	- round (rund)
Ro.	- Reaumur; right angle (rechter Winkel); calculation bill (Rechnung)
RA	- Decision of the National Board of World War Damage (Entschdg.d.Reichsausschusses f. Weltkriegsschaden)
RA.	- solicitor (Rechtsanwalt)
Rab.	- discount; rebate; reduction (Rabatt)
RABl.	- National Labor Leaflets (Reichsarbeitsblatt)
RADVG.-M.	- Law of Welfare and Maintenance for the National Labor Service (Reichsarbeitsdienstversorgungsgesetz)
RADVG.-WJ.	- Ditto - for female youth (Weibl.Jgd.)
RAfP	- National Board of Control of Insurance-Business (Reichsaufsichtsamt für Privatversicherung)
RA Geb.O	- Scheme of Fees for Lawyers
RAM	- Minister of Labor (Reichsarbeitsminister)
R Anz	- Official Government Publication (Reichsanzeiger)
RAO	- Scheme of National Taxes (Reichsabgabenordnung)
RAO	- Order of the Red Eagle (Rota Adler Orden)
RBB	- Government-Gazette of National Household (Wages; Economy; etc.) (Reichshaushalt-und-besoldungsblatt)
Rd.Erl.	- Circular (Runderlass)
Rd.RN	- Periodical "The Right of Food-Producers" ("Recht d. Nährstandes")
R.D.T.	- National Federation of German Technical Firms (Reichsbund Deutscher Technik)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

Ref.	- rapporteur (at meeting) (Referent)
Reg.=Bez.	- administrative district (Regierungsbezirk)
Rel.	- religion (Religion)
Rep.	- handbook (Repertorium)
Repko	- reparation-commission (Reparationskommission)
resp.	- respectively (respektive)
RFM (Rd.F.)	- Minister of Finances (Reichsminister der Finanzen)
RfPr.	- National Commissary for Price Control (Reichskomm.f. Preisbildung)
RGBl	- German official journal (Reichsgesetzblatt)
rglm.	- regular(ly) (regelmässig)
RGZ	- Decisions of the Supreme Court in Civilian matters (Entscheidungen des Reichsgerichts in Zivilsachen)
RGKR	- Commentary of Civilian Law by Judges of the Supreme Court (Kommentar zum B.G.B. von Reichsgerichtsräten)
Rh.	- Rhine; Rhenish (Rhein; rheinisch)
RJF	- National Headquarters of German Youth Organizations (Reichsjugendführung)
RJM	- Minister of Justice (Reichsjustizminister)
RKA	- National Office of War Damages (Reichskriegsschadenamt)
R.L.	- National Headquarters (Reichsleitung)
RLG	- National Compulsory Service-Law (Reichsleistungsgesetz)
rm.	- cubic meter (Raummeter)
RM (Rmk.)	- Reichmark (German coin about 24 cent)
RMBl.	- National Ministerial Gazette (Reichministerialblatt)
Rmd.I.	- Minister of the Interior (Reichsminister d.Innern)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

RM <sup>e</sup> Eul	- Ministry of Food and Agriculture (R.Minist.f.Ernährung u.Ldwtschft.)
röm.	- Roman (römisch)
Rp.	- (Swiss) centime (Rappen)
Rpf.	- Reichspfennig (1/100 of one Rmk.)
RStBl.	- Leaflets of National Taxes (Reichssteuerblatt)
Rthlr.	- Reichsthaler (about 72 cents)
RV	- German Constitution (Reichsverfassung)
RVersBl.	- Leaflets of National Welfare (Reichsversorgungsblatt)
RVG	- Supreme Court of National Administration (Reichsverwaltungsgericht)
RVM	- Minister of Transport (Reichsverkehrsminister)
RVO	- National Assurance Regulations (Reichsversicherungordnung)
RWB	- Economical Regulations for National Offices (Wirtschaftsbestimmungen für die Reichsbehörden)
RWM	- Minister of National Economy (Reichswirtschaftsminister)
RWMBL.	- Leaflets of Ministry of National Economy (Min.Bl.d.RWirtschaftsch.M.)
s.	- see (siehe)
S	- page (Seite); Saint (Sant(a)); South (Süden); Schilling (Austrian currency); sulphur (Schwefel)
s.a.	- see also (siehe auch)
Sa.	- total (summa)
SA	- storm-troop (Sturmabteilung); SA-Mann=Storm-trooper, brownshirt
Sächs.	- Saxon (sächsisch)

## FINAL REPORT, C.D.D.

### ABBREVIATIONS

s.B.	- Southern latitude (sudlicher Breite)
Sb.	- antimony (chem.) Antimon
SBB.	- Swiss Federal Railways (Schweizer Bundesbahnen)
Sch.	- unit of photographic sensitiveness (Scheinergrad)
Schupo	- police force (Schutzpolizei)
schw.	- weak (schwach)
Schw.	- sister; nun; nurse (Schwester)
s.d.	- see above (siehe dies)
S.Sr.	- His (Seine(r))
sel.	- deceased; late (selig)
seq.	- following (sequens)
Ser.	- series (Serie)
Sipo	- Safety Police (Sicherheitspolizei)
SKH	- His Royal Highness (Seine königliche Hoheit)
Skt.	- Saint (Sankt)
s.l.	- to his dear (in dedications) (seinem lieben)
SM	- nautical mile (Seemeile)
S.M.	- His Majesty (Seine Majestät)
S.M.S.	- His Majesty's Ship H.M.S. (Seiner Majestät Schiff)
Sn.	- tin (chem.) (Zinn)
SO	- southeast (Südost)
s.o.	- see above (siehe oben)
sog.	- so-called (sogenannt)
Soz.	- socialist (Sozialdemokrat)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

spr.	- pronounce (sprich,
SS	- National Socialist Bodyguard, Blackshirts (Schutzstaffel)
S.S.	- summer term (Sommersemester)
SSCHFVO	- Decree of Material Damage Confirmation (Sachschädenfest- stllg.V.)
SSchVO	- Decree of Mat.War Damage in Navigation (Kriegssachschr. V.Seeschf.)
st.	- strong (stark)
St.	- piece (Stück); stem (Stamm); saint (Sankt); style (Stil)
s.t.	- punctually; sharp (sine tempore)
Stde.	- hour (Stunde)
StGB	- penal code (Strafgesetzbuch)
StPO	- Criminal Procedure (Strafprozessordnung)
Str.	- street (Strasse)
s.u.	- see below (siehe unten)
S.v.w.	- as much as (so viel wie)
SW	- South-West
s.z.	- in due time; at that time (seinerzeit)
t.	- 1000 kilogrammes (Tonne)
T.A.	- pocket-edition (Taschenausgabe)
Tb.(T.B.)	- pocket-book (Taschenbuch)
Tel.Adr.	- telegraphic address (Telegrammadresse)
teilw.	- partly (teilweise)
term.techn.	- technical expression (terminus technicus)
T.F.	- pocket-size (Taschenformat)

# FINAL REPORT, C.D.D.

## ABBREVIATIONS

T.H.	- technical university (Technische Hochschule)
Th.	- subject (Thema)
Thlr.	- dollar (Thaler)
Tit.	- title (Titel)
T.Wb.	- pocket-dictionary (Taschenwörterbuch)
u.	- and (und); among (st) (unter)
U.	- hour; o'clock (Uhr)
u.a.	- amongst other things (unter andern); and others (und andere)
u.a.m.	- and others; and other things besides (und andere mehr)
u.ä.m.	- and the like; and such like; and more of the kind (und ähnliches mehr)
u.A.w.g.	- an answer is requested (R.S.V.P.) (um Antwort wird gebeten)
Übers.	- translation; translated (Übersetzung; übersetzt)
U-Boot	- submarine (Unterseeboot); U-Bootheschiff = submarine salvage vessel
u.d.ä.	- and similar things (und dem ähnliche(s))
u.dgl.(m.)	- and more of the same kind (und dergleichen mehr)
u.d.M.	- below ) ( unter the sea-level ( dem Meeresspiegel)
ü.d.M.	- above ) ( ueber
u.E.	- in our opinion (unseres Erachtens)
u.e.a.	- and some others (und einige andere)
Ufa	- Universal Film Company (Universal Film Aktiengesellschaft)
u.ff.	- and following (und folgende)
ult.	- (of) last month; on the last day of the month (letzten Monats; am Letzten dieses Monats)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

unbest.	- uncertain (unbestimmt)
unr.(eg)	- irregular (unregelmässig)
u.ö.	- and oftener; and in other places (und öfter)
u.R.	- to be returned (unter Rückerbittung)
urspr.	- originally (ursprünglich)
usf.(usw.)	- and so forth; and so on; etc. (und so weiter)
u.U.	- perhaps; possibly (unter Umständen)
u.ü.v.	- with the usual reserves (unter üblichem Vorbehalt)
u.v.a.	- and many others (und viele andere)
u.W.	- so far as we know (unseres Wissens)
u.zw.	- namely; and what is more (und zwar)
v.	- by; from; of (von; vom)
V	- volt (Volt); volume (Volumen)
VA	- watt (Voltampere)
v.Chr.G.	- B.C. (vor Christi Geburt)
VDA	- association for the protection and promotion of German life and culture abroad (Volksbund für das Deutschtum im Ausland)
v.d.H.	- on the slopes
V.D.I.	- Association of German Engineers (Verband Deutscher Ingenieure)
V.D.St.	- Association of German Students (Verein Deutscher Studenten)
verb.	- improved (verbessert)
Verf.(Vf.)	- author (Verfasser)
Verf Richtl	- General Directions of Procedure in Re-compensation-Cases (Richtlinien für das Verfahren in Entschädigungssachen)

## FINAL REPORT, C.D.D.

### ABBREVIATIONS

verfl.J.	- (of) last year (verflossenen Jahres)
verk.	- abbreviated (verkürzt)
Verl.	- publisher; publishing firm (Verleger; Verlag)
verm.	- enlarged; increased (vermehrt); married (vermählt)
verl.	- extended, lengthened (verlängert)
versch.	- different (verschieden)
verst.	- dead; deceased; late (verstorben)
Vertr.d.RInt	- Representative of National Interest (Vertreter d.Reichs-interesses)
Verw.	- related (verwandt)
vgl.o.	- compare (see) above (vergleiche oben)
v.g.u.	- read; confirmed; signed (vorgelesen; genehmigt; unterschrieben)
v.H.	- per cent (vom Hundert)
viell.	- perhaps (vielleicht)
v.J.	- (of) last year (vorigan Jahres)
Vjs.	- quarterly (magazine) (Vierteljahrschrift)
v.M.	- (of) last month (vorigen Monats)
V.O.	- Decree (Verordnung)
v.o.	- from the top (von oben)
vor.	- last; late (vorig)
Vorben.NR	- Preface of Regulation of loss of Profit (Verbemerkung zur Regelung von Nutzungsschäden)
Vors.	- chairman (Vorsitzender)
v.R.w.	- by right(s); according to the law (von Rechts wegen)



# FINAL REPORT, C.D.D.

## ABBREVIATIONS

VSchVO	- Decree regarding Damage of Germans in the incorporated areas in the East (Poland)(Verordnung über Volkstumsschäden in den eingegliederten Ostgebieten)
v.T.	- per thousand (vom Tausend)
v.u.	- from the bottom (von unten)
VVG	- Law of Insurance Agreements (Gesetz über den Versicherungsvertrag)
W.	- standard (Währung); bill (of exchange); (Wechsel); watt (Watt); west (Westen); verst (Russian measure); tungsten (Wolfram) (chem)
W!	- please turn over (Bitte wenden!)
Wbl.	- weekly (Wochenblatt)
weil.	- formerly (weiland)
Westf.	- (Westphalen; Westfalen)
WEZ	- time of the West European zone (Westeuropäische Zeit) (Greenwich time)
WFGV	- Law of Welfare and Maintenance for the Forces (Wehrmachtsfürsorgegesetz)
Wirkl.Geh.Rat	- acting privy counsellor (Wirklicher Geheimer Rat)
W.L.	- (of) west longitude (westlicher Länge)
W.O.	- as above (wie oben)
WO.	- regulation relating to bills of exchange (Wechselordnung)
W.S.	- winter term (Wintersemester)
W.S.g.u.	- please turn over P.T.O. (Wenden Sie gefälligst um!)
WTB	- Wolf telegraphic agency (Wolffsches Telegraphenbüro)
Württ.	- Württemberg
WV.	- list of words (Wörterverzeichnis)

## FINAL REPORT. C.D.D.

### ABBREVIATIONS

Wwe	- widow (Witwe)
z.	- to; to the; by; per (zu; zum; zur)
Z.	- number (Zahl); line (Zeile); time (Zeit)
ZakDR	- Periodical of the Academy of German Right
z.B.	- for instance (e.g.) (zum Beispiel)
z.b.V.	- detailed for special work; unattached (zur besonderen Verwendung)
z.D.	- on the unattached or reserved list; on half pay (zur Disposition)
z.H.	- care of (c/o) (zuhanden)
ZPO	- Civil Procedure Code (Zivilprozessordnung)
z.S.	- of the navy (zur See)
z.s.Z.	- at its time (zu seiner Zeit) (in due time)
z.T.	- partly
Ztg.	- newspaper
Ztr.	- hundredweight (cwt.) (Zentner)
Ztschr.	- periodical (Zeitschrift)
Ztw.	- verb (Zeitwort)
Zus.	- together (zusammen)
Zszg.	- compound (Zusammensetzung)
zuw.	- sometimes (zuweilen)
zw.	- between (zwischen)
z.Z.	- at the time; at present; now; acting (secretary, etc.) (zur Zeit)





XXIX. LIST OF FIELD REPORTS



FINAL REPORT, C.D.D.

LIST OF FIELD REPORTS

1. COLOGNE Field Report,  
Dates of field team survey: 27 April 1945 - 14 May 1945.
2. BONN Field Report,  
Dates of field team survey: 27 April 1945 - 14 May 1945.
3. HANOVER Field Report,  
Dates of field team survey: 16 May 1945 - 7 June 1945.
4. HAMBURG Field Report,  
Dates of field team survey: 8 June 1945 - 27 June 1945.
5. BAD OLDESLOE Field Report,  
Dates of field team survey: 24 June 1945 - 26 June 1945.
6. AUGSBURG Field Report,  
Dates of field team survey: 29 June 1945 - 6 July 1945.
7. Special Field Report on Reception Areas in BAVARIA.  
Dates of field team survey: 28 June 1945 - 11 July 1945.

FINAL REPORT, C.D.D.

DOX. EXHIBITS





NOTES ON INTERROGATION OF COLONEL ARTHUR LENSCH,  
FORMER CHIEF OF STAFF IN THE AIR PROTECTION DIREC-  
TION STAFF OF THE GERMAN AIR FORCE (Luftwaffe)



NOTES ON INTERROGATION OF COLONEL ARTHUR LENSCH, FORMER  
CHIEF OF STAFF IN THE AIR PROTECTION DIRECTION STAFF OF  
THE LUFTWAFFE

Interview took place at GSTADT am CHIEMSEE from 1430 hours to 1630 hours on 6 July 1945.

1. Biographical Note.

a. Colonel Lensch, a native of HAMBURG, now age fifty-three (53), served in the last war as an officer and retired with the rank of lieutenant. He was a resident in HAMBURG from 1913 to 1937 (when not on war service) and was a merchant with an export and import business in chemicals.

b. In 1937, he was recalled to the military forces and was appointed on the staff of Section I (a) Op 3 of the air command number III at DRESDEN (Luftkreiskommando, later reorganized at Luftflotte) where he served from March, 1937, to March, 1938. From March, 1938, to March, 1939, he was with the same section of air zone command (Luftgaukommando) XVII and from March, 1939, to August, 1939, he was a lecturer on air protection at the Reich Institute for Air Protection in BERLIN. It was here that he first became associated with Colonel Ehrhard, who was also at that time an instructor at this institute. From August, 1939, until its reorganization in March, 1945, he served with the air inspectorate number 13 of the German Air Ministry. He was on the staff and subsequently in charge of department number 1 of this inspectorate and concerned with organizational and operational aspects (he confirmed and previously know organization of this inspectorate into three departments, the first dealing with the organization and operation, the second with administrative and the third with technical subjects). The inspectorate was first established at WANNSEE, later in TANGERMÜNDE, where it was finally dissolved in March, 1945, and his section came under Colonel Ehrhard as "Chef IS der OKI". He had come with the section to GSTADT where he had been captured and after some time in a POW camp had been released. Like Colonel Ehrhard, he had returned to GSTADT to collect his personal effects and was without any home, occupation or news of his family.

c. Although in appearance Colonel Lensch was a typical and slightly rotund German businessman, he, like his chief, Colonel Ehrhard, impressed one with his detailed knowledge of the subjects for which he was responsible, and by his clear-cut ideas on civilian defense organization and operation. Apart from a slight deafness resulting from a recent severe attack of influenza, he seemed physically very fit and active, and was now preparing to return to his commercial career. This, he stated, would involve starting afresh, as everything he had had been destroyed, including his premises and business connections in HAMBURG.

2. Organization of the Air-Protection Directing Staff of the Luftwaffe. Colonel Lensch confirmed the information given earlier that same day by Colonel Ehrhard concerning the organization of the air-protecting directing staff of the Luftwaffe (Chef IS der OKL) and stated that he, Colonel Lensch, was primarily concerned with the organization of the mobile forces. He considered the former organization of the air inspectorate number 13 to be clumsy and over-staffed. By the reorganization they had succeeded in reducing the number from three hundred (300) in the old inspectorate to ninety-six (96) in the staff of the Chef IS. In the new organization he was chief of staff and head of Section I, dealing with all organizational and operational matters.

3. Organization of the Motorized Air-Protection Battalions of the Luftwaffe. Colonel Lensch gave the attached chart (see inclosure) of the organization of a motorized air-protection battalion. From his position and the detailed information which he unhesitatingly gave about these units, one may assume that this is the most authoritative chart yet obtained. He admitted that there had been considerable variation in the actual organization between one battalion and another, but the chart shows what the organization was planned to be in the last stage. It had been recently reduced by about twenty-five percent (25%) from a rather higher establishment owing to the shortage of manpower and equipment. It will be noted that the only important discrepancy between the table and that given by Oberfeldwebel Meyer is in the disposition of the train of reserve vehicles. Meyer includes the train in the battalion staff, making the total personnel of that staff fifty (50), whereas Lensch distributes it among the companies, thereby reducing the battalion staff to twenty-seven (27). Again, Meyer puts the establishment of a battalion at four hundred and thirty-five (435), whereas Lensch's figures work out at four hundred and ninety-eight (498). It would seem, therefore, that both informants were obviously extremely well informed on the subject, as Meyer was giving the figures of his own battalion, Number 43, which no doubt had been reduced in strength by the attrition of war, whereas Lensch was giving the latest table of organization and equipment as laid down by the OKL. Lensch, moreover, admitted that internal organization of a battalion varied to some extent at the discretion of the battalion commander.

4. Total Strength of the Units in the Reich. Lensch stated there were fifty-three (53) battalions organized under eight (8) regimental staffs, with one (1) regimental staff in each air zone command.

5. Review of War Experience of the Air-Protection Organization.

a. When asked what recommendations he would make now, in the light of his experiences, had he to reorganize civilian defense afresh, Colonel Lensch strongly recommended the necessity of a unified command. He stated that throughout the war the organization at the top had been over-complicated and over-staffed, while the operational responsibility was divided among too many semi-independent organizations, resulting in confusion and loss of efficiency.



b. Another factor had been the keenness with which the Party organizations and other bodies had shown, as soon as the war broke out, to play a part in civilian defense, whereas, when Lensch himself started in 1937, it had been impossible to arouse any interest or secure any funds to develop civilian defense. Once the war was on their organization had been hampered by the intervention of all and sundry. The first essential was to secure a small and efficient directing staff at the top who could maintain tight discipline throughout a unified organization. It did not matter so much whether the control was to be placed finally in the hands of the Air Minister or Minister of the Interior, but the essential thing was that it would be unified. Nevertheless, he felt that where a country was to be subjected to the scale of attacks which GERMANY had recently experienced, none but a military organization, with its traditions and discipline, could effectively handle the problems and control the large forces which would be required to cope successfully with the situation.

c. While not admitting that this was a German problem, but quite objectively a recommendation to any country which felt itself liable in the future to air attack, he thought it essential to spend money well ahead of hostilities in organizing not only the civilian defense services but structural precautions and buildings likewise to avoid the worst effects of bombing on towns. There is no use, in his view, of trying hurriedly once the attack had started to carry out such defensive measures. He recommended, for example, that all large structures such as blocks of offices, hotels, stores, etc., should be planned with heavily protected underground storage space which could serve in time of war as shelters. These would be extremely costly but the total would be but a fraction of the losses which air attack involved. The elimination of readily combustible materials in building practice, and particularly from roof structures, the spreading out of buildings to create natural fire breaks, and similar measures should also be planned but this was a long term policy and could not be improvised at the last minute.

#### 6. Some Weaknesses of the German Organization.

a. When asked what were the major weaknesses encountered in the German system of civilian defense, Colonel Lensch said that first and foremost was the lack of adequate preparation beforehand. He took the shelter policy as an example: the cellar shelter, planned before the war, had proved entirely inadequate and it was only by the construction of the large "Bunker" type shelter that great loss of life had been avoided. This policy, however, was developed too late, when materials and labor were getting short, with the result that but a small fraction of the accommodation required had ever been completed.

b. Again, whenever the British or American air forces used a new type of bomb, hurried investigation and research was made to evolve counter-measures. Executive plans then had to be made, approval secured at all levels up to the highest and by the time practical action had



been taken this weapon was superceded by a new and more powerful missile and the whole operation had to start over again. As a result, throughout the war they had been trying to overtake events and had never caught up. As a final example of this weakness, he cited the case of the motorized air-protection battalions. In November, 1940, he recommended that eighty (80) such battalions be formed to cover the whole Reich. This proposal had been rejected and only twenty (20) battalions were authorized. As attacks multiplied they constantly increased the number of battalions throughout the war, but at every stage they had fewer troops than the current scale of attack demanded. It was a primary principle of war that the defense must be planned ahead of the attack if it was to be successful, and in this the German civilian defense had lamentably failed, owing to the inability of the high command to realize the importance of civilian defense and its requirements.

c. As regards the operational aspects, their greatest weakness had been in the leadership of the mobile forces, since they were never able to secure a first-class body of officers. Formed originally from the security and assistance service, which had been organized originally with part-time civilian personnel, they found extreme difficulty when the battalions came under the "Luftwaffe" to furnish them well-trained and competent officer personnel. When the motorized battalions were first formed from the security and assistance services the police had offered them, but had not supplied the best officers available. When they were taken over by the "Luftwaffe" an appeal was made to other services, such as the anti-aircraft and ground forces of the "Luftwaffe", for officer personnel. Again the same thing happened - units put forward officers they wished to get rid of rather than those who were experienced and able. Colonel Lensch observed that unless one started with suitable material, all the training in the world would not produce a really first-class corps of officers. Toward the end they had succeeded in getting up from the ranks, particularly from the best NCOs, reasonably good junior officers, but at no time were they able to secure the class of battalion and company commanders upon whom the efficiency of a unit ultimately depends.

d. Another operational experience in the early days was the difficulty facing units, coming in as reinforcements, in finding their way to the target area and avoiding blocking the routes of ingress to the town. This difficulty had been overcome by organizing rendezvous points, or pilot stations as the Germans call them, on the approaches to target cities. These pilot stations were clearly sign-posted and staffed with trained personnel to guide units to their areas of operation. Strict march discipline had also to be enforced on the incoming units.

e. Although incident control was operated in GREAT BRITAIN and contemplated in the UNITED STATES, it was not practiced in GERMANY. The problem had been dealt with to some extent by putting the senior officer at an incident in charge of all operations.



f. Although Lensch did not mention it, a great deal of friction between police and "Luftwaffe" officers occurred over this question of command, as is evidenced by the many circulars and instructions issued throughout the war on this subject, and studies made in various cities. Colonel Lensch thought it would have been difficult to organize incident control on British lines, owing to the shortage of manpower. The police, for example, were always being drawn upon for fresh recruits for the armed forces so that all that remained were extremely aged men or young recruits who had insufficient experience or knowledge of the town. Himmler, moreover, moved the police from one town to another so that few had any extensive local knowledge.

7. Shortage of Fuel and Equipment. Colonel Lensch considered that the civilian defense services had never had as much equipment as was necessary (Colonel Ehrhard also expressed this view, although until he had seen recently some of the American army equipment, it had apparently not occurred to him how far behind the Germans were, particularly in debris clearance appliances such as bulldozers, heavy cranes, etc.). A determining factor in the last few months of the war also had been the extreme shortage of fuel, gasoline and diesel oil. Fire appliances extinguished the fires, in a sense, with gas, as every pump was either gas or diesel driven. Cases occurred where appliances had to cease work while fresh supplies of fuel were fetched from a distance. Colonel Lensch did not think that blocked streets had ever been a determining factor as the mobile forces were trained to clear the roads and their fire appliances were quite capable of surmounting considerable piles of debris.

NOTES ON INTERROGATION OF COLONEL EHRHARD,  
HEAD OF THE AIR PROTECTION DIRECTION STAFF  
OF THE GERMAN AIR FORCE HIGH COMMAND



NOTES ON INTERROGATION OF COLONEL EHRHARD  
(Chef IS des OKL)(Head of the Air Protection Directing Staff of the  
Luftwaffe High Command)

Interview took place from 1000 to 1215 hours on 6 July 1945 at the Hotel Klein on the Fraueninsel in the CHIEMSEE, BAVARIA, GERMANY.

1. Biographical Note.

a. Colonel Ehrhard was a native of COLOGNE, age fifty-two (52), who served as a Marine officer in the 1914-18 war. Subsequently he was a police officer, serving in BERLIN and DUSSELDORF. In 1933 he was transferred to the "Landes-Polizei", which, as he explained, was the undercover regular army then being formed. In 1935 he was appointed to the air protection staff of the "Luftwaffe".

b. He began his air protection career while still a police officer in 1931, being the specialist air-protection officer of the police in DUSSELDORF. On transfer to the "Luftwaffe" he served first with Air Zone Command No. 6, at MUNSTER, from 1935 to 1938, when he was in charge of Section I (a) Op. 3, the section responsible for air protection. From 1938 to 1939, he was an instructor on air-protection tactics at the Reich Air Protection Institute in BERLIN.

c. On the outbreak of the war he became liaison officer between the directing staff of the "Luftwaffe" High Command (OKL). Section I(a) Op 3, and the chief of the Air Protection Department of the Reich Air Ministry, situated at WANNSEE, then headed by Dr. Knipfer. The OKL was at this time at WERTHE.

d. In March, 1940, he joined Dr. Knipfer's staff (then known as Arbeitsstab L.S.), serving in Section I under Ministerialrat Dr. Grosskreutz, who was at that time head of Section I. Dr. Grosskreutz retired about a year ago. This staff was divided into three sections: I - Organization and formation of units; II - Administration, clothing, pay and rations of personnel, accommodation and the legal department, III - Technical Section under Ministerialrat Lindner).

e. In June, 1943, he was appointed head of Section I (a) Op 3, of Air Fleet 3 in PARIS, where he was responsible for the supervision of the organization of civilian defense in FRANCE, BELGIUM and HOLLAND.

f. After the withdrawal from FRANCE, he was appointed to the Command of Air Protection Regiment No. 5 in VIENNA, serving there from November, 1944, to February, 1945. Dr. Knipfer's "Arbeitsstab L.S." had been renamed earlier in the war: Air Inspectorate (Luft Inspektion) No. 13, Dr. Knipfer remaining at the head until he resigned in October, 1944, after a severe rebuke from the Führer. (NOTE: According to

information supplied later by Colonel Lensch, the Fuhrer was enraged because of a bad shelter incident at FRANKFURT, where a "Bunker" had been penetrated by a bomb and all the occupants killed. Knipfer was apparently tactless enough to point out that this "Bunker" was built to standards which Hitler himself had approved.)

g. In March, 1945, the inspectorate was dissolved and a new organization established, particulars of which have been already given by Lindner (see report of interrogation circulated by A.D.I.K.\*). Under the new arrangement the general direction and control of air-protection policy was vested in the so-called "Chef L.S." of the Luftwaffe High Command and Colonel Ehrhard was appointed to this office. The headquarters were first at TANGERMONDE (where L.I. 13 had been evacuated from BERLIN), and on 14 April were transferred to GSTADT am CHILDESSEE.

\* Int. Br. M.H.S. paper IBN/212 30.4.45.

h. Colonel Ehrhard submitted the attached copy of a letter dated 8 May 1945, addressed to the commander of the American forces at MUNICH, which shows he was captured with his staff and several of the motorized air-protection battalions of the "Luftwaffe" on 4 May 1945. Colonel Ehrhard also stated that before the collapse, a section of his staff under Colonel Gaatz, who was inspector of the motorized battalions, with ten (10) to twelve (12) of his officers, had been sent to the north of GERMANY. A number of their records had been sent direct from TANGERMONDE to the research station at EHRA-LESSIEN.

i. After being taken to the prisoner of war camp at FELDMIRCHEN, and later transferred to the camp at FURSTENFELDBRUCK, he was finally released and returned to GSTADT towards the end of June. Like other officers in his position, he is completely out of touch and has no news of his wife and family and had returned to GSTADT merely because his personal effects were there. He expressed surprise that no one had previously shown any interest in him, although he was the head of civilian defense in GERMANY and had concluded it was because the Americans were not interested in the subject. Colonel Ehrhard is of medium height, with a keen and alert manner, and looked physically very fit. From the way in which he answered questions put to him, it was obvious that he had a clear grasp of all aspects of the German air-protection organization with which he had been so long associated. The information which he gave is set out below.

## 2. Organization of the Air Protection Directing Staff.

a. The office of the Chef L.S. had a staff of about one hundred and twenty-five (125) officers, officials and clerks. Section I dealt with operations and policy and was under the control of Colonel Lensch, who also acted as chief of staff to Colonel Ehrhard.

b. The operational side of Section I was in charge of Lt.



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Colonel Salm, with a staff of three (3) majors and three (3) captains. Section I (a): organization, was under Major Beutner; and I (c), dealing with press and propaganda, under Major Weinnecke; Section II, dealing with the warning service, was under Major Sunder-Plassmann. Lighting, decoy sites and camouflage were the responsibility of Hauptmann Dr. Knothe and a staff of four (4) or five (5) officers. (Comment: Dr. Knothe was a well-known German of the German mission which attended ARP exercises in LONDON in June, 1938.) He was last heard of in the POW camp at FURSTENFELDRUCK.

c. Colonel Gaatz (see par. 1 h above), besides being inspector of the motorized battalions, was responsible for the smoke troops who operated the smoke screens, and for smoke policy. The commandant of the research station at KHRA-LESSIEN was Colonel Lukasader, who had Baurat Schmidt as technical advisor.

d. Another officer (name not given) maintained liaison with the Reich Industrial Group through the air zone commands to the factory air-protection regional offices (Bereichsstellen), and down, through their area offices (Bezirkstellen), to the individual factories. A further section of the staff was responsible for supervising air-protection military premises and in the Reich organizations (railways, posts and telegraphs, inland waterways, etc.).

e. The directing staff (Section III) came directly under Colonel Ehrhard. It was concerned with general policy and laid down the principles upon which air protection was to be organized throughout the Reich. Colonel Ehrhard stated that the reorganization which took place in March, 1945, was on the lines for which he had been pressing for some years, as he considered the previous organization of Air Inspectorate No. 13 to be too complicated and unwieldy. He succeeded in getting his way after much argument at the highest levels and had secured the control of policy by a small and efficient directing staff.

f. It was clear from his remarks that he and the other "Luftwaffe" officers did not think highly of some of the civilian officials and particularly of Ministerialrat Lindner. There had probably been a good deal of friction in the previous organization between these two groups.

3. The Motorized Air-Protection Battalions of the Luftwaffe.

a. Colonel Ehrhard admitted that he did not have the exact figures in his head, but estimated the total strength of the motorized battalions at forty thousand (40,000) men, organized in eight (8) regiments, with battalions numbered from 1 to 50, but with gaps. He thought there were about thirty-five (35) battalions in all. When it was pointed out to him that thirty-five (35) battalions, at about five hundred (500) men per battalion, would account for only seventeen thousand five hundred (17,500), he was unable to reconcile this with the forty thousand (40,000)

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quoted above. Colonel Ehrhard stated, however, that Colonel Lensch knew more of this matter than he did and when Colonel Lensch was interrogated later the same day, he put the number of battalions at fifty-three (53). (Comment: Lindner gave the figure as about sixty (60) and Meyer (see above) fifty-eight (58). On this point, Lensch, being the head of the staff section responsible, is likely to be correct.)

b. Regiments and commanders, as far as could be remembered, were as follows:

<u>Regiment Number</u>	<u>Commander</u>	<u>Situated in Luftgau</u>
1	-	VI MUNSTER
2	-	XI HAMBURG
3	Lt. Col. Hainert	III BERLIN
4	(This regiment should have been in STUTTGART but was not formed).	V STUTTGART
5	Colonel Jacob	XVII VIENNA
6	Colonel Schneider	XIV WIESBADEN
7	-	VII MUNICH
8	-	Somewhere in Eastern GERMANY*

\* Probably in I KÖNIGSBERG or VIII BRISLAU.

4. Location of Battalions. Toward the end of the war, several battalions had been moved down to the SALZBURG-ROSENBERG area as the American forces advanced. Their task, among other things, was to cover the BERCHTESGADEN-SALZBURG area. Battalions which Colonel Ehrhard could remember were:

<u>Battalion Number</u>	<u>Commander</u>	<u>Location</u>
13	-	PALLING
17	-	LINZ AREA
31	Major Silbersdorf	MIESBACH
36	-	SALZBURG
42	-	LINZ (formerly VIENNA)
43	Lt. Col. Kleinau	GSTADT
(or 34)	Lt. Col. Steinauer cf. in par. 7 App. C)	MEYERS statement

## 5. Operational Control.

a. Colonel Ehrhard confirmed statements from earlier witnesses as to the control of these battalions by air zone commands (IGK) through regimental headquarters. He added, however, that they were generally earmarked to protect special targets such as vital factories or key plants, and certain large towns likely to become targets. Toward the end of the



## FINAL REPORT, C.D.D. EXHIBIT B (Cont'd)

war the protection of oil refineries and oil storage depots had been a primary concern. He denied, however, that any priority was given to other premises or establishments of the "Luftwaffe".

b. Since the regimental headquarters and the air zone commands were in close touch with the aircraft reporting and warning service, they were able to plan the moves of the battalions ahead in the light of the air situation as it developed. Three warnings were issued by regimental headquarters to battalions: the first warning meant that the battalion had to stand by; on the second warning they had to form their vehicles into a convoy, and on the third warning they were dispatched to their target. On arrival at the target they came under the orders of the local air-raid-protection leader (chief of police) and would usually be allotted special areas; inside these areas the battalion commander was responsible for his own dispositions.

c. Should an air zone command find itself unable to meet all the demands made upon it from its own resources, reinforcements from another air zone would have to be sought through the headquarters of the air fleet (in the last few months this would mean applying to Luftflotte Reich).

6. Personnel and Accommodation. Men were recruited originally from the motorized security and assistance service, but throughout the war the younger men had been continually drafted into the "Wehrmacht" or to vital industry, and the age groups at the end had been from forty (40) to sixty (60), with a final stepping-up to forty-four (44) and over. The units were accommodated at the beginning in barracks, but in recent months chiefly in schools and other large buildings.

## 7. Communications.

a. Communication between air zone command and regimental command was by land line or radio. Radio could also be used from regiment to battalion. Where distances were small, wireless telephone could be used, but where distances were too long it was necessary to employ Morse signals.

b. Communication from battalion to companies was by land line and motorcycle dispatch rider. Field telephones and field cable equipment were also carried by battalions for communication with companies where land lines were cut. Between regiments and battalions, radio was used only when several battalions were engaged in the same target area, otherwise it was found quicker to use dispatch riders. This was partly due to the lack of experience of the personnel in operating radio.

c. Recently, women radio operators had been introduced. The number serving with a battalion varied, however, and as in other cases of manning and equipment, depended largely upon the energy which the battalion commander displayed in securing reinforcements and supplies.

8. Detailed Organization of a Battalion. Colonel Ehrhard sketched out the table of organization. He admitted, however, that he was not very sure himself of the later organization which had been evolved after many changes in the light of experience. He suggested that Colonel Lensch would be able to give more accurate information on this point.

9. Organization of the Air Protection Staff at an Air Zone Command. Air protection matters in the air zone command were handled by section I (a) O.P. 3 (in 1944 renamed I (a) L.S.), with a staff of twelve (12) to fifteen (15) officers. Colonel Ehrhard considered this section over-staffed and wished to reduce it to a total of four (4) officers, including the head of the section. The allocation of duties was as follows:

- 1 officer in charge of the motorized air-protection battalions.
- 1 officer responsible for factory air protection.
- 1 officer acted as liaison officer with the air protection police of the large cities in the air zone.
- 1 officer dealt with gas protection.
- 1 officer dealt with smoke screens.
- 1 officer dealt with the warning services.
- 1 officer dealt with decoy sites and camouflage.
- 3 or 4 officers covered structural air protection, splinter protection, shelter construction and particularly "Bunker" construction.

10. Assistance from Motorized Fire Protection Police Regiments. The air zone commander could, if necessary, call on the chief commander of the order police in the military defense district (Wehrkreis) for assistance from the motorized fire police regiments. Colonel Ehrhard believed that three (3) regiments, each of three (3) battalions, existed in the Reich, one (1) regiment being in VIENNA.

11. Changes Recommended in the Light of Experience.

a. Asked what his general opinion was of the operation of the German civilian defense system under saturation attacks, Colonel Ehrhard stated that in his view, once one side had overwhelming air superiority, it was no longer possible for civilian defense to cope with the situation. Had he the opportunity of starting afresh in organizing civilian defense, he would strive for a unified command with a small expert directing staff and a highly disciplined mobile force which could be directed from strategic points to any city threatened.

b. The German system had, he considered, been too sub-divided and lacked unity of control. At no time had they adequate resources to meet the scale of attack and they suffered particularly from the drain on the younger age groups during the later stages of the war. (Comment: It is interesting to compare the above statement with that made by Colonel Eckmann, the Air Protection Staff Officer to the Chief of the Order Police in Wehrkreis X at HAMBURG. As a police officer, Eckmann



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criticized the placing of the motorized battalions under "Luftwaffe" control but made exactly the same comment as Ehrhard on the lack of unified control.

# UNITED STATES STRATEGIC BOMBING SURVEY

## LIST OF REPORTS

The following is a bibliography of reports resulting from the Survey's studies of the European and Pacific wars. Those reports marked with an asterisk (\*) may be purchased from the Superintendent of Documents at the Government Printing Office, Washington, D. C.

### European War

#### OFFICE OF THE CHAIRMAN

- \*1 The United States Strategic Bombing Survey: Summary Report (European War)
- \*2 The United States Strategic Bombing Survey: Overall Report (European War)
- \*3 The Effects of Strategic Bombing on the German War Economy

#### AIRCRAFT DIVISION

(By Division and Branch)

- \*4 Aircraft Division Industry Report
- 5 Inspection Visits to Various Targets (Special Report)

#### Airframes Branch

- 6 Junkers Aircraft and Aero Engine Works, Dessau, Germany
- 7 Erla Maschinenwerke G m b H, Heiterblick, German
- 8 A T G Maschinenbau, G m b H, Leipzig (Mockau), Germany
- 9 Gothaer Waggonfabrik, A G, Gotha, Germany
- 10 Focke Wulf Aircraft Plant, Bremen, Germany
- 11 Messerschmitt A G, Augsburg, Germany
  - { Over-all Report
  - { Part A
  - { Part B
  - { Appendices I, II, III
- 12 Dornier Works, Friedrichshafen & Munich, Germany
- 13 Gerhard Fieseler Werke G m b H, Kassel, Germany
- 14 Wiener Neustaedter Flugzeugwerke, Wiener Neustadt, Austria

#### Aero Engines Branch

- 15 Bussing NAG Flugmotorenwerke G m b H, Brunswick, Germany
- 16 Mittel-Deutsche Motorenwerke G m b H, Taucha, Germany
- 17 Bavarian Motor Works Inc, Eisenach & Durrerhof, Germany
- 18 Bayerische Motorenwerke A G (BMW) Munich, Germany
- 19 Henschel Flugmotorenwerke, Kassel, Germany

#### Light Metal Branch

- 20 Light Metals Industry
  - { Part I, Aluminum of Germany
  - { Part II, Magnesium

- 21 Vereinigte Deutsche Metallwerke, Hildesheim, Germany
- 22 Metallgussgesellschaft G m b H, Leipzig, Germany
- 23 Aluminiumwerk G m b H, Plant No. 2, Bitterfeld, Germany
- 24 Gebrueder Giuliani G m b H, Ludwigshafen, Germany
- 25 Luftschiffbau, Zeppelin G m b H, Friedrichshafen on Bodensee, Germany
- 26 Wieland Werke A G, Ulm, Germany
- 27 Rudolph Rautenbach Leichtmetallgiessereien, Solingen, Germany
- 28 Lippewerke Vereinigte Aluminiumwerke A G, Lunen, Germany
- 29 Vereinigte Deutsche Metallwerke, Hedderneim, Germany
- 30 Duerener Metallwerke A G, Duren Wittenau-Berlin & Waren, Germany

#### AREA STUDIES DIVISION

- \*31 Area Studies Division Report
- 32 A Detailed Study of the Effects of Area Bombing on Hamburg
- 33 A Detailed Study of the Effects of Area Bombing on Wuppertal
- 34 A Detailed Study of the Effects of Area Bombing on Dusseldorf
- 35 A Detailed Study of the Effects of Area Bombing on Solingen
- 36 A Detailed Study of the Effects of Area Bombing on Remscheid
- 37 A Detailed Study of the Effects of Area Bombing on Darmstadt
- 38 A Detailed Study of the Effects of Area Bombing on Lubeck
- 39 A Brief Study of the Effects of Area Bombing on Berlin, Augsburg, Bochum, Leipzig, Hagen, Dortmund, Oberhausen, Schweinfurt, and Bremen

#### CIVILIAN DEFENSE DIVISION

- \*40 Civilian Defense Division—Final Report
- 41 Cologne Field Report
- 42 Bonn Field Report
- 43 Hanover Field Report
- 44 Hamburg Field Report—Vol I, Text; Vol II, Exhibits
- 45 Bad Oldesloe Field Report
- 46 Augsburg Field Report
- 47 Reception Areas in Bavaria, Germany

#### EQUIPMENT DIVISION

##### Electrical Branch

- \*48 German Electrical Equipment Industry Report
- 49 Brown Boveri et Cie, Mannheim Kafertal, Germany

##### Optical and Precision Instrument Branch

- \*50 Optical and Precision Instrument Industry Report



### Abrasives Branch

- \*51 The German Abrasive Industry
- 52 Mayer and Schmidt, Offenbach on Main, Germany

### Anti-Friction Branch

- \*53 The German Anti-Friction Bearings Industry

### Machine Tools Branch

- \*54 Machine Tools & Machinery as Capital Equipment
- \*55 Machine Tool Industry in Germany
- 56 Herman Kolb Co., Cologne, Germany
- 57 Collet and Engelhard, Offenbach, Germany
- 58 Naxos Union, Frankfurt on Main, Germany

## MILITARY ANALYSIS DIVISION

- 59 The Defeat of the German Air Force
- 60 V-Weapons (Crossbow) Campaign
- 61 Air Force Rate of Operation
- 62 Weather Factors in Combat Bombardment Operations in the European Theatre
- 63 Bombing Accuracy, USAAF Heavy and Medium Bombers in the ETO
- 64 Description of RAF Bombing
- 64a The Impact of the Allied Air Effort on German Logistics

### MORALE DIVISION

- \*64b The Effects of Strategic Bombing on German Morale (Vol I and Vol II)

### Medical Branch

- \*65 The Effect of Bombing on Health and Medical Care in Germany

## MUNITIONS DIVISION

### Heavy Industry Branch

- \*66 The Coking Industry Report on Germany
- 67 Coking Plant Report No. 1, Sections A, B, C, & D
- 68 Gutehoffnungshuette, Oberhausen, Germany
- 69 Friedrich-Alfred Huette, Rheinhausen, Germany
- 70 Neunkirchen Eisenwerke A G, Neunkirchen, Germany
- 71 Reichswerke Hermann Goering A G, Hallendorf Germany
- 72 August Thyssen Huette A G, Hamborn, Germany
- 73 Friedrich Krupp A G, Borbeck Plant, Essen, Germany
- 74 Dortmund Hoerder Huettenverein, A G, Dortmund, Germany
- 75 Hoesch A G, Dortmund, Germany
- 76 Bochumer Verein fuer Gusstahlfabrikation A G, Bochum, Germany

### Motor Vehicles and Tanks Branch

- \*77 German Motor Vehicles Industry Report
- \*78 Tank Industry Report
- 79 Daimler Benz A G, Unterturkheim, Germany
- 80 Renault Motor Vehicles Plant, Billancourt, Paris
- 81 Adam Opel, Russelheim, Germany
- 82 Daimler Benz-Gaggenau Works, Gaggenau, Germany
- 83 Maschinenfabrik Augsburg-Nurnberg, Nurnberg, Germany
- 84 Auto Union A G, Chemnitz and Zwickau, Germany
- 85 Henschel & Sohn, Kassel, Germany
- 86 Maybach Motor Works, Friedrichshafen, Germany
- 87 Voigtlander, Maschinenfabrik A G, Plauen, Germany
- 88 Volkswagenwerke, Fallersleben, Germany
- 89 Bussing NAG, Brunswick, Germany
- 90 Muehlenbau Industrie A G (Miag) Brunswick, Germany
- 91 Friedrich Krupp Grusonwerke, Magdeburg, Germany

### Submarine Branch

- 92 German Submarine Industry Report
- 93 Maschinenfabrik Augsburg-Nurnberg A G, Augsburg, Germany
- 94 Blohm and Voss Shipyards, Hamburg, Germany
- 95 Deutschewerke A. G, Kiel, Germany
- 96 Deutsche Schiff und Maschinenbau, Bremen, Germany
- 97 Friedrich Krupp Germaniawerft, Kiel, Germany
- 98 Howaldtswerke A. G, Hamburg, Germany
- 99 Submarine Assembly Shelter, Farge, Germany
- 100 Bremer Vulkan, Vegesack, Germany

### Ordnance Branch

- \*101 Ordnance Industry Report
- 102 Friedrich Krupp Grusonwerke A. G Magdeburg Germany
- 103 Bochumer Verein fuer Gusstahlfabrikation A G, Bochum, Germany
- 104 Henschel & Sohn, Kassel, Germany
- 105 Rheinmetall-Borsig, Dusseldorf, Germany
- 106 Hermann Goering Werke, Braunschweig, Hallendorf, Germany
- 107 Hannoverische Maschinenbau, Hanover, Germany
- 108 Gusstahlfabrik Friedrich Krupp, Essen, Germany

## OIL DIVISION

- \*109 Oil Division, Final Report
- \*110 Oil Division, Final Report, Appendix
- \*111 Powder, Explosives, Special Rockets and Jet Propellants, War Gases and Smoke Acid (Ministerial Report #1)
- 112 Underground and Dispersal Plants in Greater Germany
- 113 The German Oil Industry, Ministerial Report Team 78
- 114 Ministerial Report on Chemicals

### Oil Branch

- 115 Ammoniakwerke Merseburg G m b H, Leuna, Germany—2 Appendices
- 116 Braunkohle Benzin A G, Zeitz and Bohlen, Germany
- 117 Wintershall A G, Leutskendorf, Germany
- 117 Ludwigshafen-Opau Works of I G Farbenindustrie A G, Ludwigshafen, Germany
- 118 Ruhroel Hydrogenation Plant, Bottrop-Boy, Germany, Vol. I, Vol. II
- 119 Rhenania Ossag Mineraloelwerke A G, Harburg Refinery, Hamburg, Germany
- 120 Rhenania Ossag Mineraloelwerke A G, Grasbrook Refinery, Hamburg, Germany
- 121 Rhenania Ossag Mineraloelwerke A G, Wilhelmsburg Refinery, Hamburg, Germany
- 122 Gewerkschaft Victor, Castrop-Rauxel, Germany, Vol. I & Vol. II
- 123 Europaeische Tanklager und Transport A G, Hamburg, Germany
- 124 Ebano Asphalt Werke A G, Harburg Refinery, Hamburg, Germany
- 125 Meerbeck Rheinpreussen Synthetic Oil Plant—Vol. I & Vol. II

### Rubber Branch

- 126 Deutsche Dunlop Gummi Co., Hanau on Main, Germany
- 127 Continental Gummiwerke, Hanover, Germany
- 128 Huels Synthetic Rubber Plant
- 129 Ministerial Report on German Rubber Industry

## Propellants Branch

- 130 Elektrochemischewerke, Munich, Germany
- 131 Schoenebeck Explosive Plant, Lignose Sprengstoff Werke G m b H, Bad Salzemen, Germany
- 132 Plants of Dynamit A G, Vormal, Alfred Nobel & Co, Troisdorf, Clausthal, Drummel and Duneberg, Germany
- 133 Deutsche Sprengchemie G m b H, Kraiburg, Germany

## OVER-ALL ECONOMIC EFFECTS DIVISION

- 134 Over-all Economic Effects Division Report
 

Gross National Product-----	} Special papers which together comprise the above report
Kriegseilberichte-----	
Herman Goering Works-----	
Food and Agriculture-----	
- 134a Industrial Sales Output and Productivity

## PHYSICAL DAMAGE DIVISION

- 134b Physical Damage Division Report (ETO)
- 135 Villacoublay Airdrome, Paris, France
- 136 Railroad Repair Yards, Malines, Belgium
- 137 Railroad Repair Yards, Louvain, Belgium
- 138 Railroad Repair Yards, Hasselt, Belgium
- 139 Railroad Repair Yards, Namur, Belgium
- 140 Submarine Pens, Brest, France
- 141 Powder Plant, Angouleme, France
- 142 Powder Plant, Bergerac, France
- 143 Coking Plants, Montigny & Liege, Belgium
- 144 Fort St. Blaise Verdun Group, Metz, France
- 145 Gnome et Rhone, Limoges, France
- 146 Michelin Tire Factory, Clermont-Ferrand, France
- 147 Gnome et Rhone Aero Engine Factory, Le Mans, France
- 148 Kugelfischer Bearing Ball Plant, Ebelsbach, Germany
- 149 Louis Breguet Aircraft Plant, Toulouse, France
- 150 S. N. C. A. S. E. Aircraft Plant, Toulouse, France
- 151 A. I. A. Aircraft Plant, Toulouse, France
- 152 V Weapons in London
- 153 City Area of Krefeld
- 154 Public Air Raid Shelters in Germany
- 155 Goldenberg Thermal Electric Power Station, Knap-sack, Germany
- 156 Brauweiler Transformer & Switching Station, Brau-weiler, Germany
- 157 Storage Depot, Nahbollenbach, Germany
- 158 Railway and Road Bridge, Bad Munster, Germany
- 159 Railway Bridge, Eller, Germany
- 160 Gustloff-Werke Weimar, Weimar, Germany
- 161 Henschell & Sohn G m b H, Kassel, Germany
- 162 Area Survey at Pirmasens, Germany
- 163 Hanomag, Hanover, Germany
- 164 M A N Werke Augsburg, Augsburg, Germany
- 165 Friedrich Krupp A G, Essen, Germany
- 166 Erla Maschinenwerke G m b H, Heiterblick, Ger-many
- 167 A T G Maschinenbau G m b H, Mockau, Germany
- 168 Erla Maschinenwerke G m b H, Mockau, Germany
- 169 Bayerische Motorenwerke, Durrerhof, Germany
- 170 Mittel-Deutsche Motorenwerke G m b H, Taucha, Germany
- 171 Submarine Pens Deutsche-Werft, Hamburg, Germany
- 172 Multi-Storied Structures, Hamburg, Germany
- 173 Continental Gummiwerke, Hanover, Germany
- 174 Kassel Marshalling Yards, Kassel, Germany
- 175 Ammoniawerke, Merseburg-Leuna, Germany
- 176 Brown Boveri et Cie, Mannheim, Kafertal, Germany
- 177 Adam Opel A G, Russelsheim, Germany
- 178 Daimler-Benz A G, Unterturkheim, Germany
- 179 Valentin Submarine Assembly, Farge, Germany
- 180 Volkswaggonwerke, Fallersleben, Germany
- 181 Railway Viaduct at Bielefeld, Germany
- 182 Ship Yards Howaldtswerke, Hamburg, Germany
- 183 Blohm and Voss Shipyards, Hamburg, Germany

- 184 Daimler-Benz A G, Mannheim, Germany
- 185 Synthetic Oil Plant, Meerbeck-Hamburg, Germany
- 186 Gewerkschaft Victor, Castrop-Rauxel, Germany
- 187 Klockner Humboldt Deutz, Ulm, Germany
- 188 Ruhroel Hydrogenation Plant, Bottrop-Boy, Germany
- 189 Neukirchen Eisenwerke A G, Neukirchen, Germany
- 190 Railway Viaduct at Altenbecken, Germany
- 191 Railway Viaduct at Arnzburg, Germany
- 192 Deurag-Nerag Refineries, Misburg, Germany
- 193 Fire Raids on German Cities
- 194 I G Farbenindustrie, Ludwigshafen, Germany, Vol I & Vol II
- 195 Roundhouse in Marshalling Yard, Ulm, Germany
- 196 I G Farbenindustrie, Leverkusen, Germany
- 197 Chemische-Werke, Huels, Germany
- 198 Gremberg Marshalling Yard, Gremberg, Germany
- 199 Locomotive Shops and Bridges at Hamm, Germany

## TRANSPORTATION DIVISION

- \*200 The Effects of Strategic Bombing on German Trans-  
portation
- 201 Rail Operations Over the Brenner Pass
- 202 Effects of Bombing on Railroad Installations in  
Regensburg, Nurnberg and Munich Divisions
- 203 German Locomotive Industry During the War
- 204 German Military Railroad Traffic

## UTILITIES DIVISION

- \*205 German Electric Utilities Industry Report
- 206 1 to 10 in Vol I "Utilities Division Plant Reports"
- 207 11 to 20 in Vol II "Utilities Division Plant Reports"
- 208 21 Rheinische-Westfalische Elektrizitaetswerk A G

## Pacific War

### OFFICE OF THE CHAIRMAN

- \*1 Summary Report (Pacific War)
- \*2 Japan's Struggle to End The War
- \*3 The Effects of Atomic Bombs on Hiroshima and  
Nagasaki

## CIVILIAN STUDIES

### Civilian Defense Division

- 4 Field Report Covering Air Raid Protection and Allied  
Subjects, Tokyo, Japan
- 5 Field Report Covering Air Raid Protection and Allied  
Subjects, Nagasaki, Japan
- \*6 Field Report Covering Air Raid Protection and Allied  
Subjects, Kyoto, Japan
- 7 Field Report Covering Air Raid Protection and Allied  
Subjects, Kobe, Japan
- 8 Field Report Covering Air Raid Protection and Allied  
Subjects, Osaka, Japan
- 9 Field Report Covering Air Raid Protection and Allied  
Subjects, Hiroshima, Japan—No. 1
- \*10 Summary Report Covering Air Raid Protection and  
Allied Subjects in Japan
- \*11 Final Report Covering Air Raid Protection and  
Allied Subjects in Japan

## Medical Division

- \*12 The Effects of Bombing on Health and Medical Ser-  
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- \*13 The Effects of Atomic Bombs on Health and Medical  
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## Morale Division

- \*14 The Effects of Strategic Bombing on Japanese Morale



## ECONOMIC STUDIES

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- \*15 The Japanese Aircraft Industry
- \*16 Mitsubishi Heavy Industries, Ltd.  
*Corporation Report No. I*  
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- \*17 Nakajima Aircraft Company, Ltd.  
*Corporation Report No. II*  
(Nakajima Hikoki KK)  
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*Corporation Report No. III*  
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- \*20 Aichi Aircraft Company  
*Corporation Report No. V*  
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- \*21 Sumitomo Metal Industries, Propeller Division  
*Corporation Report No. VI*  
(Sumitomo Kinzoku Kogyo KK, Puropera Seizoshu)  
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- \*22 Hitachi Aircraft Company  
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*Corporation Report No. VIII*  
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- \*24 Japan Musical Instrument Manufacturing Company  
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- \*26 Fuji Airplane Company  
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- \*27 Showa Airplane Company  
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- \*29 Nippon Airplane Company  
*Corporation Report No. XIV*  
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- \*30 Kyushu Airplane Company  
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- \*32 Mitaka Aircraft Industries  
*Corporation Report No. XVII*  
(Mitaka Koku Kogyo Kabushiki Kaisha)  
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- \*33 Nissan Automobile Company  
*Corporation Report No. XVIII*  
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- 50 Chemicals in Japan's War—Appendix
- 51 Oil in Japan's War
- 52 Oil in Japan's War—Appendix

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- \*53 The Effects of Strategic Bombing on Japan's War Economy (Including Appendix A: U. S. Economic Intelligence on Japan—Analysis and Comparison; Appendix B: Gross National Product on Japan and Its Components; Appendix C: Statistical Sources).

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- \*57 Effects of Air Attack on the City of Nagoya
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- 59 Effects of Air Attack on the City of Nagasaki
- 60 Effects of Air Attack on the City of Hiroshima

## MILITARY STUDIES

### Military Analysis Division

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- 62 Japanese Air Power
- 63 Japanese Air Weapons and Tactics
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- 65 Employment of Forces Under the Southwest Pacific Command
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- 67 Air Operations in China, Burma, India—World War II
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- 80 Report of Ships Bombardment Survey Party (Enclosure A), Kamaishi Area
- 81 Report of Ships Bombardment Survey Party (Enclosure B), Hamamatsu Area
- 82 Report of Ships Bombardment Survey Party (Enclosure C), Hitachi Area
- 83 Report of Ships Bombardment Survey Party (Enclosure D), Hakodate Area
- 84 Report of Ships Bombardment Survey Party (Enclosure E), Muroran Area
- 85 Report of Ships Bombardment Survey Party (Enclosure F), Shimizu Area
- 86 Report of Ships Bombardment Survey Party (Enclosures G and H), Shionomi-Saki and Nojima-Saki Areas

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- 100 Evaluation of Photographic Intelligence in the Japanese Homeland, Part III, *Computed Bomb Plotting*
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- 103 Evaluation of Photographic Intelligence in the Japanese Homeland, Part VI, *Shipping*
- 104 Evaluation of Photographic Intelligence in the Japanese Homeland, Part VII, *Electronics*
- 105 Evaluation of Photographic Intelligence in the Japanese Homeland, Part VIII, *Beach Intelligence*
- \*106 Evaluation of Photographic Intelligence in the Japanese Homeland, Part IX, *Artillery*
- \*107 Evaluation of Photographic Intelligence in the Japanese Homeland, Part X, *Roads and Railroads*
- 108 Evaluation of Photographic Intelligence in the Japanese Homeland, Part XI, *Industrial Analysis*





THE UNITED STATES  
STRATEGIC BOMBING SURVEY

CIVILIAN DEFENSE DIVISION  
FINAL REPORT



CIVILIAN DEFENSE DIVISION

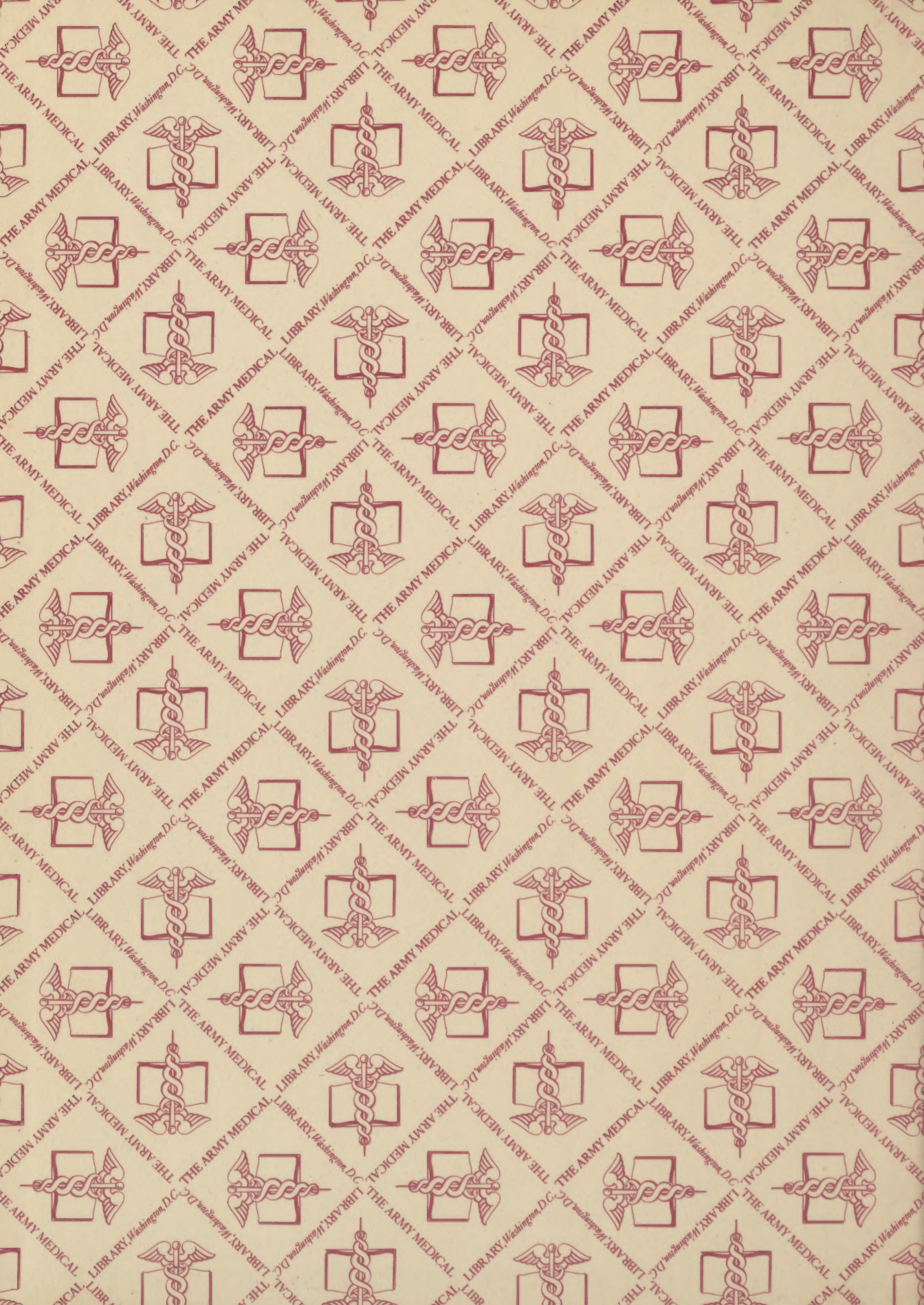
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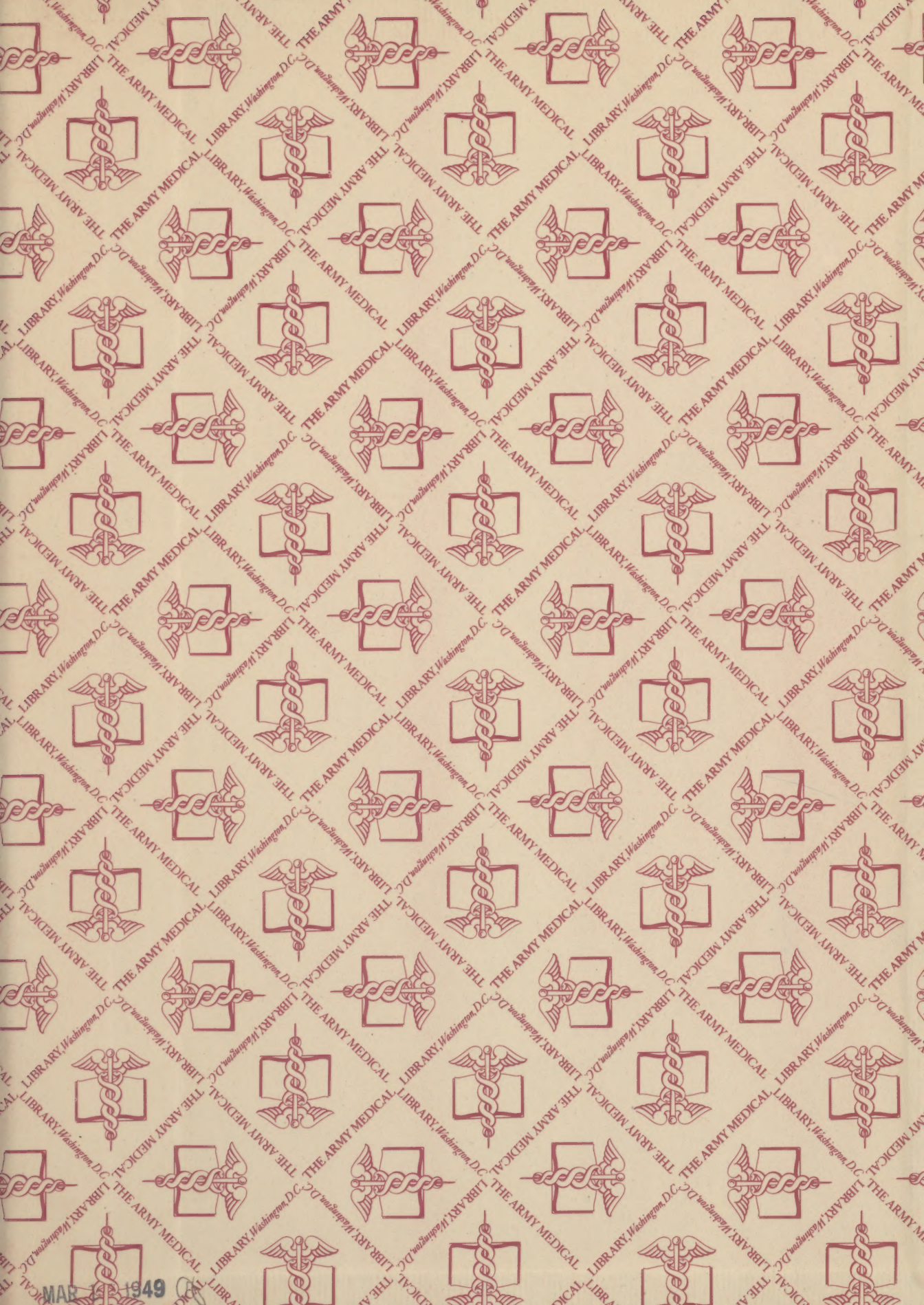












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